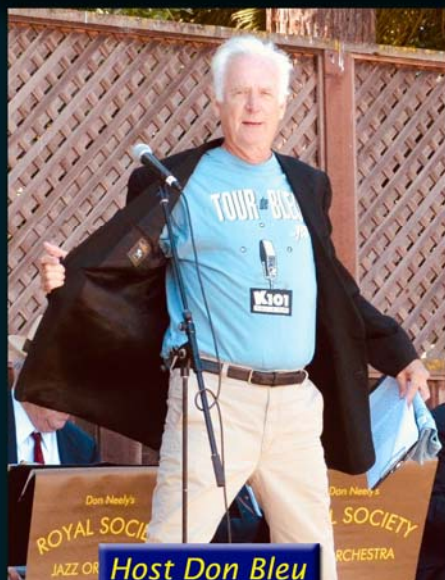




Volume 41, Number 2

Fall/Winter 2022

Journal of the CALIFORNIA HISTORICAL RADIO SOCIETY



Host Don Bleu



Auctioneers Rosie Allen & Greg Jarrett



Auctioneer Dan Ashley

Radio Day Live! 2022



Radio Play - "Dragnet - The Big Bounce"



Royal Society Jazz Orchestra

FOR THE RESTORATION AND PRESERVATION OF EARLY RADIO



FROM THE BIRTHPLACE OF BROADCASTING
CALIFORNIA HISTORICAL RADIO SOCIETY
HOME OF THE BAY AREA RADIO MUSEUM & HALL OF FAME

The California Historical Radio Society (CHRS) is a non-profit educational corporation chartered in the State of California. Formed in 1974, CHRS promotes the restoration and preservation of early radio and broadcasting. Our goal is to enable the exchange of information on the history of radio, particularly in the West, with emphasis on collecting, preserving, and displaying early equipment, literature, and programs. Yearly membership is \$30 (\$40 non-USA).

CHRS Museum in Alameda

CHRS has been fortunate, through the generosity of its donors, to purchase a home for the CHRS museum and education center. It is located at 2152 Central Avenue. The building was built in 1900 as a telephone exchange.

CHRS volunteers are actively restoring the building to make it optimal for use. Our goal is to create an environment to share our knowledge and love of radio and enable us to create an appreciation and understanding for a new generation of antique radio collectors and historians.

Please come visit us any Saturday 9am to 3pm. Visitors and groups welcome at other times by appointment; Contact Steve Kushman.



Contact us:

CHRS, PO Box 31659, San Francisco, CA 94131
or info@californiahistoricalradio.com

Visit us at: www.CaliforniaHistoricalRadio.com

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Scott Robinson	- Vice President, Technical Ops.
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Dennis Monticelli	- Amateur Radio Operations
David Vasquez	- Electrical Transcription Project

Lunch crew: Keith Scott, Betty Cosmos, Judy Mears

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From the Editor

I wish to thank all the authors for their articles, support, and scholarly contributions. Gilles Vrignaud presents the CHRS entry into an international radio contest hosted by a radio club in France; John Okolowicz offers a look at Crosley's emphasis in radio marketing; John Staples provides insight into the characteristics and operation of Coherer detectors; Robert Rydzewski again takes us back to early wireless in Alameda and a look at another early experimenter/operator who inadvertently had an impact on newly formed radio law; Stan Bunger presents noted sportscaster, John Madden; Len Shapiro presents the Bay Area Radio Hall of Fame Class of 2022; and I provide the highlights of the Vintage Television Enthusiasts. Steve Kushman and Mike Adams provide updates. Mike Loper gives us an update of the Central Valley Chapter.

I am always in need of quality content related to broadcast radio, ham radio, and television. If you have something to contribute, I urge you to let me know. I am especially interested in technical content. It can be of two types, a narrow topic in depth or a more broad topic with less depth. Enjoy . . .

Richard Watts, jrchrs@comcast.net



From The President

by Steve Kushman

As we approach the year's end it's time for reflection. It's been a weird few years do to the Covid business. It feels good to be almost totally back to pre Covid programs and activities this year. We had a successful Radio Day By The Bay in July. We also have had several radio swap meets and events at Radio Central. We have been part of the Bay Area Broadcast Legends luncheons. We have celebrated and inducted the new 2022 Class of our Bay Area Radio Hall Of Fame. KCBS-AM radio used Radio Central to host Stan Bunker's retirement party. Stan was the morning news anchor on KCBS for 21 years! Recently a short comedy video was shot in our 1958 radio control room at Radio Central. We have taken in many fine donations of gear and funds this year. Our volunteers and supporters are passionate about CHRS, Radio Central and our future successful preservation of communications history with radio as the string that ties it all together.

Looking at the big picture, CHRS is thriving, as some other vintage radio organizations are having a tough time. Radio events and swap meets across the country are noticeably smaller in numbers of buyers and sellers. Memberships in some groups are shrinking as the old timers are signing off and leaving behind lots of gear that need homes. The radio collecting hobby has changed over the years. And as a hobby, it's also showing its age. I'm sure that CHRS is not the only vintage radio group mostly populated by white haired and/or balding elderly gentlemen. I'm one of them. And collecting trends have changed. For an example, the once treasured battery sets from the 1920s and other early wireless gear are not as popular as they once were... Because the people who treasured them are gone. Following are ideas that have served CHRS well. We hope they might spark other groups into action as they face their futures.

Having been associated with CHRS since 1988, I've seen change and more change in who we are. We have evolved from a parking lot collectors' group to a true historical radio society. Change started in 2003 when we were able to occupy the old KRE radio station in Berkeley. For 10 years we built a collection, a library, repair shop, the Radio Hall Of Fame and more. And most importantly we learned how to build a museum. We weren't able to stay at KRE causing our most dramatic change. Through strong support of our membership and community, in 2014 we were very fortunate to be able to purchase the original telephone building in Alameda built in 1900. And this sturdy brick structure, known as CHRS Radio Central is our forever home.

Survival Tip 1... Get your group a location you can call home. It's tough, but there are ways. Radio preservationists, collectors, historians have shown they can be dedicated. They can make it happen.

Survival Tip 2... You know, when you become a radio collector, you automatically become a historian. You know when and where your radio was made, and who made it. You know what type it is, and you know how it works. And you may know the story of the company that built it. So, our groups should find ways to preserve and present this history. Especially radio history relating to our local areas. If you don't have one, create a web site. It's a way to save and present the stories of radio. A web presence will let the world know who your group is, how people can help and why they should join.

Survival Tip 3... Think and listen out of the radio box. Traditionally our hobby has been about radios themselves, sets of vacuum tubes or transistors coupled with other components. CHRS has expanded our focus to the sound coming out of the speaker... radio broadcasting. This has opened up a whole new world for us. I could devote pages to the importance of broadcasting, but I'm running out of space. CHRS has the Bay Area Radio Museum on-line where the stories of our local stations and personalities are told, along with the help of many audio clips. Also, on-line, now as well in Radio Central, we have the Bay Area Radio Hall Of Fame where we celebrate and honor people in local radio. You too can do this. Reach out to your local broadcasting community. Populate your web site with stories of local radio, programs, audio clips and a Radio Hall Of Fame. A new vista will open. Get broadcasters involved. Many of them still have their hair.

Survival Tip 4... Our radio repair shop is the most popular place in Radio Central. If you can, build a shop. It attracts many younger people who like to tinker with electronics. Generally, these are people in their 20s, 30s and 40s and are good candidates to become our future. The shop offers opportunities for teaching and learning radio repair. Plus, it will help you with Tip 5 below.

Survival Tip 5... Become the ultimate recyclers. CHRS has learned to rescue 1950s & 60s table radios that were on their way to the landfill or left in a pile at the end of swap meets. We clean, polish, repair and paint when necessary, electrically upgrade, safety test and add an aux cable to these sets. The aux cable will take a Bluetooth fob so one can play their favorite music through... an antique! This is exactly what young people want today. We have no problem finding new homes and second lives for these once rejected sets. The same holds true for the long, low Mid Century Modern consoles. Tube or solid state, they are now in demand. My how times change. Rehoming these excess items is a good way to offer the public a radio or audio treasure that will inspire their interest. Their appreciation often results not only in a generous donation, but in curiosity about CHRS and potentially a new membership.

These have been my two cents worth this time. There is more our groups can do. We must preserve radio and communications in all their forms. They are such important parts of our history and culture. And our vintage radio groups are the ones who will carry their stories forward. So, it's so important for groups to seriously consider their futures. Because, you know what? The future is here.

I encourage you to contact me with questions and comments. Keep Smiling, Steve (415) 203-2747. Steve@chrsradio.com

◇

From The Chairman

by Mike Adams

Over the years, the California Historical Radio Society has been able to achieve a unique and respected presence within the greater historical radio community. This has only been possible through the generosity and commitment of donors and volunteers. To recognize those donors who have made outstanding contributions to the acquisition and renovation of the CHRS Radio Central Museum and Education facility, a large plaque will be installed near the entrance. First, at the top of the list is Norman Leal.

Norm has been a radio enthusiast for decades and is willing to help and offer accurate and knowledgeable guidance to others. Norm has authored a variety of articles about radio repair theory and techniques, some of which have appeared in CHRS Journals.

Because of his experience and expertise, he is a highly respected contributor to the Antique Radio Forum and the moderator of the Electrical/Mechanical Repair and Restoration section. A few comments from the forum about Norm's contribution:

"Norm Leal has helped me numerous times over the years with his common-sense approach to some very difficult problems. He has over 24,000 posts [as of 2010 when this comment was written] and that is a LOT considering he does not get into any of the arguments and sometimes frivolous debates. When he posts it is warranted. Reminds me of the old E. F. Hutton commercials. When Norm Leal speaks--people listen." And another from 2010, "Here's to ya Norm, and all the great folks on ARF that spend time helping poor dummies like me."

Norm is an active with CHRS. At times, he works with the CHRS Board to review strategy and recommend improvements. He also is very active with the Southern California Antique Radio Society (SCARS). Formally, Norm is the liaison between CHRS and SCARS and has worked effectively to build and strengthen bonds between the organizations.

In recognition of Norm's contribution to the preservation of radio and to his support to the greater radio collector community, in 2014 CHRS presented him with the Doc Herrold award. This is the highest honor presented by CHRS and is given to those who exhibit "Outstanding Achievement in the Preservation and Documentation of Early Radio."



Norm Leal receiving the Doc Herrold Award.



Norm at a CHRS swap meet.

CHRS was able to occupy the KRE studio from 2003 until 2014. When it was learned in 2012 that the owner of KRE would be in bankruptcy, CHRS conducted a funding drive to attempt to purchase the building, at which time Norm made a very generous contribution. Through no fault of our own, the opportunity to purchase KRE was rescinded, so CHRS continued the funding drive to purchase another building. We found our current building and had raised a significant portion of the asking price. But, even with the generous donations received so far, it wasn't enough. Then Norm stepped in with an additional very generous donation put us over the top. The building purchase would not have been possible if Norm hadn't been there for us.

So, when you visit Radio Central, you'll see our new plaque with Norm's name in large typeface, and at the top of an esteemed group of committed individuals all trusting that their \$100K plus donations will be put to proper use, that of saving radio hobby, radio scholarship, radio science and radio communication. Know that Norm has always been a proponent of CHRS becoming an educational museum and with a focus on engaging our youth to become exposed and perhaps interested in radio. Spend a few moments at this plaque because now you know how we got here. ◇

CHRS Central Valley Chapter News

by Michael Loper

2022 has been an interesting year for our chapter. After a few slow years it seems that interest is on an uptick. We have picked up a few new members of late, and several of them may prove to be important to our chapter's future.

Our Wednesday night radio workshops are popular with a number of our members. We are drawing about a half a dozen people every week. John Wallin, our resident mentor, has been instrumental in helping our members when needed to whip a reluctant radio into shape. We also changed our monthly meeting time from the third Saturday morning of the month to the 3rd Wednesday evening. The Wednesday radio workshop and meeting combination is popular with the members and we have been getting a good turnout.

We recently hosted our annual fall swap meet for the first time in 3 years. Held at Perry's Market in Manteca instead of the fairgrounds in Turlock, we had hoped to attract some casual shoppers from the market and nearby town fair. Though that did not work out, we did draw sellers from as far away as the Bay Area and Fresno, and quite a few radio enthusiasts came early looking for bargains.

We are electing new officers this fall. Though John Wallin will probably run uncontested as the incumbent vice-chairman, we will elect a new Chairman and Treasurer. Our new officers will serve a 2 year term starting in January.

Our next event, in late October, is a vinyl record "swap and sale" meet at the American Graffiti Car Museum in Modesto. We will have a radio display there and sell some radios too.

Our Christmas Party is tentatively planned for the second Saturday in December. Last year it was a lot of fun, held at a Bar and Grill in Modesto. This year we are leaning towards a pizza parlor in Ripon, which is a bit closer to most of our members.



John Wallin restored this Crosby table radio electronically and added an audio jack. Archie Durham refinished it with the stars and stripes motif.



Our fall swap meet was held at Perry's Market in Manteca.



We Won The Concours D'élégance !

By Gilles Vrignaud



1st Place went to CHRS for a 1927 Metrodyne with an Egyptian motif and the celluloid horn speaker.

The Club Histoire et Collection Radio, a radio club located in France, invited participants to enter a 1920's Radio and Horn speaker in a Concours D'élégance. Contestants were encouraged to dust their entries and make them look their best.

At my recommendation, CHRS entered the contest and the gorgeous 1927 Metrodyne was selected as the entry.

This was a team effort with participation from Steve Kushman, who donated the radio to CHRS; Philip Monego who loaned the beautiful celluloid speaker and who later donated to CHRS to be shown with the radio, a couple of tubes, and the refinishing services of his assistant, Carlos Perez; Walt Hayden who painstakingly photographed the entry; Kent Leech, who helped us find a set of gold 201A tubes for the right look; and from me, I remanufactured the front tuning knobs, wrote up and submitted the application and submission, and generally encouraged everyone to get things done.

A great team effort! Thank you all.



2nd Place went to Jean-Louis Garressus from Haut-Doubs



3rd Place went to Jean-Jacques Kress from Brittany for a TM tube reaction detector circa 1920.



4th Place went to Jean-Paul Pioletat from Jura for a 7-tube heterodyne.



5th Place went to Johan Catteau from Belgium for a 1922-23 De Wouters connected block set.

Crosley Radio's Beauty Contest

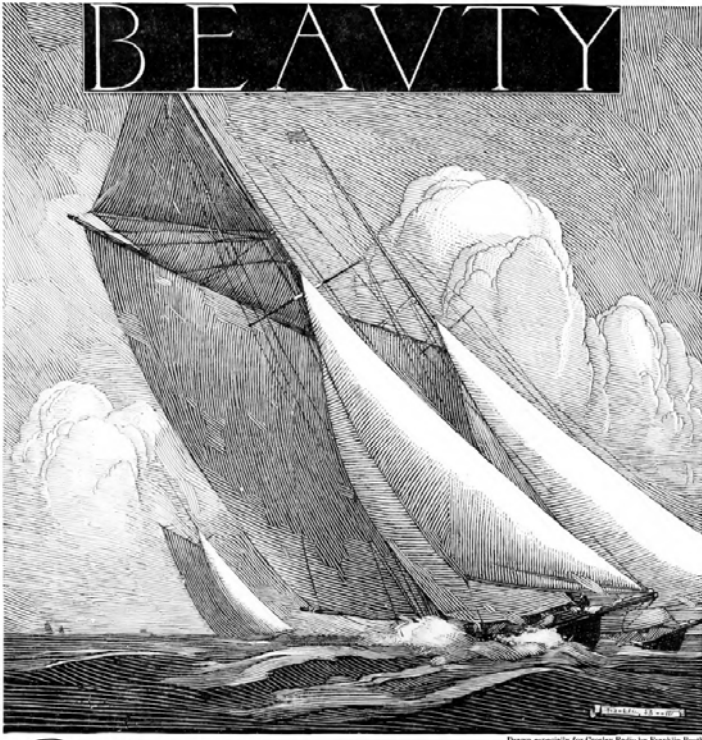
By John Okolowicz

Crosley, like most radio manufacturers in the 20s and 30s, made a point of emphasizing the beauty of their radios – in addition to their performance, of course. In the fall of 1930 they ran an advertising campaign using “Beauty” as the keynote attribute to boldly promote their distinctive collection of repwood radios such as the Buddy, the Pal, the Mate, the Director, and the Arbiter.

From their ad featuring a single masted America’s Cup-style sailboat (Figure 1), here is a brief quote:

“In the new Crosley radio receivers BEAUTY has been made the keynote—they denote a new era of the truly beautiful in radio cabinet design and construction. Beauty of reception—quality is characteristic of them, too.”

Collier's for September 20, 1930



Down especially for Crosley Radio by Franklin Booth

BEAUTY

You're there with a
CROSLEY

A truly versatile instrument that provides complete entertainment for any occasion in the modern home. Duly, crowning music from the air as a background for conversation... then someone says, "Let's dance!" Instantly the radio receiver is switched to the electric phonograph and the large speaker into the CROSLEY ARBITER lives up your parties... makes your home the center of social attraction for the youngsters and their elders. A cabinet of superlative beauty, a super-collector, and sensitive radio receiving set, a power speaker of utmost tone flexibility. Screen Grid tubes, Neutrodyne circuit, A.C. electric, electric phonograph... all these are yours in the new CROSLEY ARBITER for only... \$137.50 LESS TUBES Available with induction type self-starting motor at \$147.50

The Arbiter
Electric Phonograph and Radio Combination
\$137.50
LESS TUBES

BEAUTY... a spanking breeze and the long, rolling eloquence of tangy water across which white sails glide with incredible speed in a pageant of endurance. There is a cup to be won, and well to the fore this great, gleaming gull spreads her fourteen thousand feet of snowy canvas with an eagerness bespeaking her lineage. The will to do—the stamina, the scientific principle of every essential part, has been built into her. She must win! And does!

BEAUTY... radio, as it is, one of the most astounding inventions of an astounding age—voicing, as it does, all of the beauties and musical intricacies of the centuries—calls for beauty, as well, in physical aspect. In the new Crosley radio receivers BEAUTY has been made the keynote—they denote a new era of the truly beautiful in radio cabinet design and construction. Beauty of reception—quality is characteristic of them, too. To such painstaking design and manufacture comes, naturally, the sure reward of leadership—the cup-winning ability. There is, after all, sheer beauty—super-excellence of mechanics—superlative performance—built into Crosley radio. It must win—it does!

THE CROSLEY RADIO CORPORATION
Powel Crosley, Jr., President Home of "the Nation's Station"—WLW CINCINNATI
Also manufacturers of CROSLEY Battery Radio Receiving Sets, the CROSLEY ROAMING Automobile Radio Receiving Set, and the famous AMRAD RADIO

CROSLEY RADIO

Franklin E. Booth (1874-1948)

The CROSLEY NEW Companionship Series
SCREEN GRID • NEUTRODYNE POWER SPEAKER • A.C. ELECTRIC

The NEW Buddy

An exquisite table, mantel or clock type self-contained receiving set, with power speaker, only 15½" high, 15½" wide, and 9½" deep, so small in size and light in weight that it is easily moved from place to place. Contains the same type receiving set as THE PAL and THE MATE. Employs three Screen Grid Tubes. Nothing ever equalled it at so low a price... **\$64.50** LESS TUBES

The Pal

A marvelously beautiful cabinet, 25½ inches high, suitable for use as an end, bedside or occasional table. Contains the same receiving set and power speaker as THE MATE and employs the same number and type of tubes. The price is amazingly low for the quality and performance... **\$69.50** LESS TUBES

The Mate

A delightfully designed and executed cabinet that harmonizes with any surroundings in the home. It contains an entirely new receiving set and power speaker. Employs three type -24 Screen Grid tubes, one type -45, and one type -80. The unusual value of THE MATE at the exceptionally low price is self-evident... **\$75.00** LESS TUBES

The CROSLEY NEW Leadership Series
SCREEN GRID • NEUTRODYNE POWER SPEAKER • A.C. ELECTRIC

The Director

A particularly beautiful cabinet containing a receiving set employing three Screen Grid tubes type -24, one type -27, two type -45, and one type -80. Positive automatic volume control, local-distance switch and dynamic-power speaker are features of this set. Astonishingly low in price... **\$107.50** LESS TUBES

The CROSLEY ARBITER Electric Phonograph and Radio Combination is a member of the CROSLEY NEW Leadership Series

Fig. 1: Crosley sailboat advertisement from Collier's magazine, September 20, 1930 issue.

From the ad featuring a woman in swim trunks (Figure 2):

"the beauty of a young bather's lithe, young form. . . bright robe flying with the wind, silhouetted against sun and sky.

BEAUTY. . . just as essential to modern radio receiving sets, has been enshrined in the new Crosley cabinets. . . to disclose a new era of pristine beauty in radio cabinet design and construction"

August 30, 1930

Liberty

19

YOU'RE THERE WITH A CROSLEY.

beauty

BEAUTY . . . as essential to human existence as the very air we breathe . . . the beauty of great green waves rolling in from a summer sea . . . of curved beaches and pink-hearted shells echoing the song of far ports and tropic adventure . . . the beauty of a bather's lithe, young form . . . bright robe flying with the wind, silhouetted against sun and sky.

BEAUTY . . . just as essential to modern radio receiving sets, has been enshrined in the new Crosley cabinets—unfolding, as they do, the curtains to disclose a new era of pristine beauty in radio cabinet design and construction—delicately wrought—of exquisite woods and period designs. Beauty of tone, as well, whereby the sweep and shadings of melody or the human voice—a lullaby or a reverberating operatic chorus—are brought to you in the living presence—captured from Empires of Space . . . perhaps an ocean across. Thus does Crosley bring you twofold beauty in the new Crosley radio receivers.

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Powel Crosley, Jr., Pres. Home of "the Nation's Station"—WLW CINCINNATI

Also manufacturers of CROSLEY Battery Radio Receiving Sets, the CROSLEY ROAMIO Automobile Radio Receiving Set, and the famous AMRAD RADIO

CROSLEY
RADIO

The CROSLEY
NEW Companionship
Series

SCREEN GRID • NEUTRODYNE
POWER SPEAKER • A. C. ELECTRIC

The NEW Buddy

An exquisite table, mantel or clock type self-contained receiving set, with power speaker, only 15 3/4" high, 15 1/2" wide, and 9 3/4" deep, so small in size and light in weight that it is easily moved from place to place. Contains the same type receiving set as The PAL and The MATE. Employs three Screen Grid tubes. Nothing ever equalled it at so low a price . . .

\$64.50
LESS TUBES

The Pal

A marvelously beautiful cabinet 25 1/4 inches high, suitable for use as an end, bedside or occasional table. Contains the same receiving set and power speaker as The MATE. The price is amazingly low for the quality and performance . . .

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A particularly beautiful cabinet containing a receiving set employing three Screen Grid tubes type -24, one type -27, two type -45, and one type -80. Positive automatic volume control, local-distance switch and dynamic-power speaker are features of this set. Astonishingly low in price only . . .

\$107.50
LESS TUBES

The CROSLEY ARBITER Electric Phonograph and Radio combination is a member of The CROSLEY NEW Leadership Series

The Arbiter

Electric Phonograph and
Radio Combination

A truly versatile instrument that provides complete entertainment for any occasion in the modern home. Soft, crooning music from the air as a background for conversation . . . then someone says, "Let's dance!" Instantly the radio receiver is switched to the electric phonograph and the latest dance hits. The CROSLEY ARBITER livens up your parties . . . makes your home the center of social attraction for the youngsters and their elders. A cabinet of superlative beauty, a super-selective and sensitive radio receiving set, a power speaker of utmost tone flexibility, Screen Grid tubes, Neutrodyne circuit, A. C. electric, electric phonograph . . . all these are yours in the new CROSLEY ARBITER for only

\$137.50
LESS TUBES

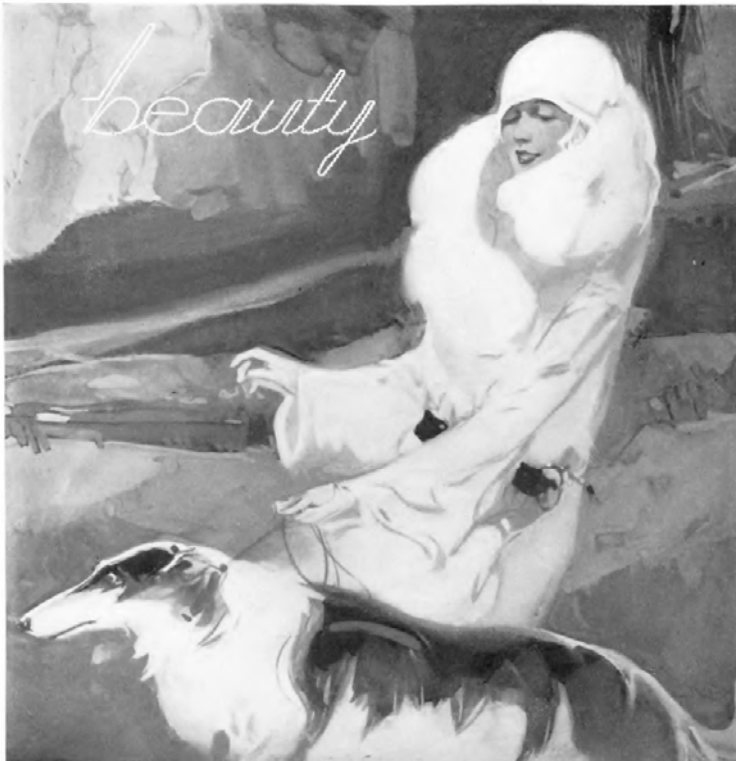
Also available with induction type self-starting motor at \$147.50

Fig. 2: Crosley beauty advertisement from Liberty magazine, August 1930 issue.

And from the ad showing an upper class woman walking her dog in the park (Figure 3):

"BEAUTY. . . golden autumn and Nature in a new party dress, foot free in the meadows and the wooded places. . .

"RADIO . . . to encompass this in a cabinet of beautiful carving. . . opening a new vista in radio cabinet design and construction. . . fair to the eye, physically, and obedient to the individual demands of the human ear. . ."



Painted especially for Crosley Radio by A. C. Pearce

You're there
with a
CROSLEY



The NEW Buddy

An exquisite table, mantle or clock type self-contained receiving set, with power speakers, only 15" high, 12 1/2" wide, and 5 1/4" deep, so small in size and light in weight that it is easily moved from place to place. Contains the same type receiving set as The PAL and The MATE. Employs three Screen Grid tubes. Nothing ever equaled it at so low a price

\$64⁵⁰

LESS TUBES

BEAUTY . . . golden autumn and Nature in a new party dress, foot-free in the meadows and the wooded places. "The most beautiful time of the year," poets and idealists venture to say. Perhaps they sense the living moods of the seasons . . . the buoyant voices of Spring . . . the chattering comic opera notes of summer . . . Autumn's medley of pathos in a minor key. For the world, at best, is a vast radio in itself . . . alive, vibrant, many-sided.

RADIO . . . to encompass this in a cabinet of beautiful carving . . . to enshrine in a miracle of mechanism the voice of the universe, accessible to the finger tips at a moment's notice . . . to follow the seasons through, day in and night out, reflecting their infinite beauty and their gayer moods, requires genius of the highest order. The culmination of this genius is to be found in the new Crosley radio receiving sets . . . opening a new vista in radio cabinet design and construction . . . fair to the eye, physically, and obedient to the individual demands of the human ear in their amazing ability "to get anything on the air," note for note, heartbeat for heartbeat, with the original as it enters the microphone . . . this is brought you a new day in radio reception by Crosley.

THE CROSLEY RADIO CORPORATION
Powel Crosley, Jr., President Home of "the Nation's Station"—WLW
CINCINNATI

Also manufacturers of CROSLEY Battery Radio Receiving Sets, the CROSLEY ROAMING Automobile Radio Receiving Set, and the famous AMRAD RADIO

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The CROSLEY
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Series

SCREEN GRID • NEUTRODYNE
POWER SPEAKER • A. C. ELECTRIC

The Pal



A marvelously beautiful cabinet, 25 1/4 inches high, suitable for use as an end, bedside or occasional table. Contains the same receiving set and power speaker as The MATE and employs the same number and type of tubes. The price is amazingly low for the quality and performance

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LESS TUBES

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\$107⁵⁰

LESS TUBES

Available for D. C. at same price.

The Arbitrator
*Electric Phonograph and
Radio Combination*



A truly versatile instrument that provides complete entertainment for any occasion in the modern home, complete in a cabinet of superlative beauty. The same super-selective and sensitive radio receiving set and dynamic-power speaker as in The DIRECTOR. A marvelous electric phonograph and radio combination for what you would ordinarily expect to pay for a radio receiving set alone

\$137⁵⁰

LESS TUBES

Also available with induction type self-starting motor at \$147.50

Woman's Home Companion November 1930

CROSLEY RADIO

Fig. 3: Crosley beauty advertisement from Women's Home Companion magazine, November 1930 issue.

All had interesting artwork, but the text could've used more help from the folks on Madison Avenue.

Those ads were not Crosley's first foray at linking their company with the notion of beauty. Six years earlier, in 1924, they came up with the bold, some would say kookie, idea of sponsoring an actual beauty contest – on the radio – sight unseen. Crosley proudly bragged that it would be: “the first radio beauty contest in the world.”

The Miss America contest only started in 1921, so using a beauty contest for marketing purposes was still a relatively new idea. But, even so, that contest was held live in Atlantic City. Crosley's, however, was to be held remotely (today one might say: virtually) in WLW's radio studio in Cincinnati. The only clues as to what the contestants looked like were going to be via the announcer's description. Four women were pre-selected to be the contestants (Figure 4) and each would be referenced by a number (1-4), rather than by her name.

Crosley staged the contest on Valentine's Day late at night (10PM) thus maximizing the range of their broadcast signal. The rules were simple. First, each contestant would be described by the radio announcer according to 10 attributes (hair, eyes, nose, mouth, complexion, figure/size, smile, accomplishments, personality, and voice). Then, each girl would be asked to say a few words to the radio audience. Listeners could then form their own mental image of each contestant. Votes had to arrive at the studio by telegram on that same night to be counted as valid.

As a voting incentive, all participants were to receive a three month subscription to the *Crosley Radio Weekly* to help make up for the cost of the telegram. All entrants who selected the winning contestant would receive a five pound box of Dolly Varden Candy. All entrants who selected the runner-up would receive a box of Sonada Cigars.

Strangely, there was never any mention of the prize to be awarded to the female winning contestant. The *Crosley Radio Weekly* merely stated: “Suitable presents will be given.” The contestants were also to be treated to a “special theater party at the Grand Opera House given by Thurston, the Magician.” A pretty stingy offer on Crosley's part by any measure, I'd have to say.

Opal A. Mowry's write-up of this event in *Radio Progress* magazine from March 15, 1924 summed up the grand finale:

“The winner of the contest was Miss Mathilda Brooks of Cincinnati. Her description as sent out over the radio is as follows: Hair, raven black; eyes, of a Russian Princess, dark and seductive; nose, full feminine; mouth, with lips full and cherry red; complexion, brunette, decidedly; figure and size, slender, willowy—a replica of Nazimova; smile, full and sympathetic; accomplishments, sings beautifully; personality, 99 and 44-100%.”

Even though the publicity generated by this event was mediocre, at best, Crosley ran a second contest in 1925. The pool of contestants was bumped up from four to five and at least this time a prize of \$300 was awarded to Phyllis Sacia, the winning lady. Overall, it garnered less public attention than had the first attempt.

Still undaunted, in 1926 Crosley's WLW team tried yet again for the 3rd time, but in this go-around they completely overhauled the concept. Instead of having listeners select the prettiest young beauty, they let them choose between “old fashioned” vs. the new kind of “flapper grandma.” Another change made had to do with voting. This time the votes were to be submitted by postcard rather than by telegram. Because most rural telegram offices were closed in the evening, that prevented many would-be voters from casting their ballots in both of the previous contests.

Alas, we have no idea which style of grandma won because the *Crosley Radio Weekly* magazines for that time period have not yet been posted online by anyone. Also, Newspapers.com, the internet repository of thousands of old newspapers, does not have any mentions of that contest's outcome.

Radio Beauty Contestants



—Courtesy of Young & Carl.
The first beauty contest to be held by radio will be conducted in the Crosley studio, Cincinnati, on St. Valentine's night. Votes will be cast by telegraph from all over the world and the winner will be announced at midnight. Mary Costello, Helen Hamilton, Mathilda Brooks and Statira Childress are the contestants.

Fig. 4: Beauty contest contestants from the *Crosley Radio Weekly*, February 18, 1924, page 1.

After learning about Crosley's radio beauty contest, it made me think of Bell Telephone's long running magazine ad campaign "the voice with a smile."

Bell Telephone's successful advertising campaign ran in major print media (*Life*, *Saturday Evening Post*, *Time* magazine, etc.) from the late 1930s into the 1960s, capitalizing on the blind judgements that we subconsciously made every time we accessed one of their unseen operators. They highlighted our tendency to create visual fantasies. Figures 5 & 6 show just two examples of these ads.

Arguably, 99.9% of the time Bell's operators were indeed just like the ones pictured in their ads, but somewhere out in the vast universe of telephone operators there may have lurked an exception. Otherwise, how else could you explain Ernestine (Figure 7), Lily Tomlin's over-the-top character from Rowan & Martin's *Laugh-In*?

References:

1. *Crosley Radio Weekly*, February 11, 1924.
2. *Crosley Radio Weekly*, February 18, 1924.
3. *Radio Digest*, February 16, 1924.
4. *Crosley Radio Weekly*, March 3, 1924.
5. *Radio Progress*, March 15, 1924, p23.
6. *Radio Digest*, February 7, 1925, p4.
7. *Radio Digest*, February 14, 1925, p4.
8. *Radio Digest*, February 13, 1926, p2.



Fig. 5: Bell Telephone, "Voice With a Smile" ad, *Popular Mechanics*, December 1938.



Fig. 6: Bell Telephone "Voice With a Smile" ad, *Life*, June 6, 1949.



Fig. 7: Ernestine LP record album cover art from the 1970s.

Understanding Coherers

By John Staples, W6BM

Early radio experiments require instruments that detect and indicate the presence of a signal from a spark transmitter. The earliest receivers were wire loops that included a microscopic spark gap. Not very sensitive.

Experiments with static electricity (amber rods rubbed by cat's fur) discovered that in the presence of a spark discharge dust would suddenly jump and form into threads. Could this effect be used to detect the presence of a pulse of electrical energy?

The "coherer", a device using metal filings between two electrodes, would suddenly become conductive in the presence of a near discharge. This would be an example of a "poor contact" detector. Other detectors discovered include rectifying contacts such as crystals, and even rusty nail-razor blade detectors used by troops in wartime.



Amber rod rubbed by cat's fur.



Marconi detector using a self-restoring coherer.

The coherer has many fathers, but is frequently attributed to Professor Edouard Branly, a professor at the Institut Catholique de Paris who was thrice nominated for the Nobel prize.

The coherer is a non-restoring detector, meaning that its state is changed from a high resistance to a low resistance in the presence of a discharge. To restore to a high resistance state, the coherer is tapped or moved by a hammer powered by a doorbell mechanism, or continually throttled by a "trembler", a wind-up device.

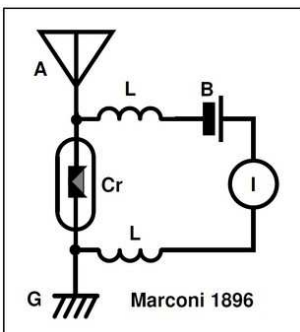
The coherer is not a rectifier or a non-ohmic device. It is a two-state device, either high or low resistance, and is not a demodulator of an RF signal.

Other detectors, such as the one used by Marconi in his famous December 1901 trans-Atlantic communications demonstration, used self-restoring coherers, containing a small drop of mercury between two plugs in an evacuated glass tube. The non-restoring coherer demonstrated here (left) is usually referred to as a Marconi coherer.

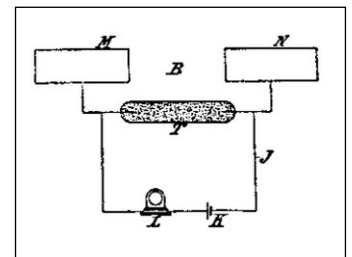
The Earliest Experiments

To achieve communications over long distances, high-power spark discharge transmitters emit pulses of energy over a wide bandwidth. Frequently, the only tuned circuits were the capacitance of the antenna resonating with the inductance of the transmitter components.

Receivers were also untuned. To the right is shown the diagram of a coherer-based receiver disclosed in Marconi's 1896 patent: "IMPROVEMENTS IN TRANSMITTING ELECTRICAL IMPULSES AND SIGNALS, AND IN APPARATUS THEREFOR"

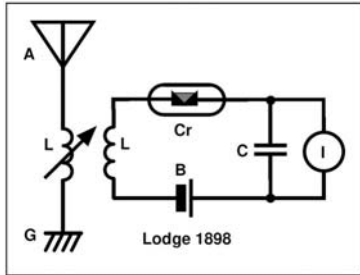


He states (diagram left): The coherer Cr is situated between the antenna A and ground G. A battery B supplies a small voltage to sense the resistance state of the coherer, indicated by the device I that may be the coil of a relay, an ammeter, or an earphone that would click upon the state transition of the coherer. The inductors L suppress shorting the RF from the antenna to the indicator.

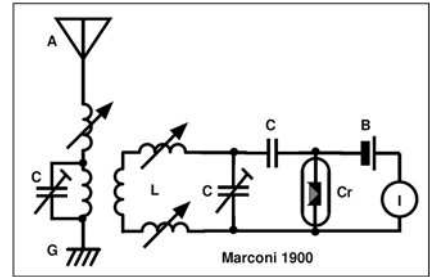


From Marconi's patent: The receiving instrument consists of a battery circuit J, which includes a battery or cell K, a receiving instrument L, and a tube T containing metallic powder or filings [the coherer], each end of the column of filings being also connected to plates or conductors M N of suitable size, so as to be preferably tuned with the length of wave of the radiation emitted from the transmitting instruments.

Further developments include the introduction of tuning of both the transmitter and receiver to make it more selective, less responsive to unwanted signals, and to allow more frequency bands to be used.



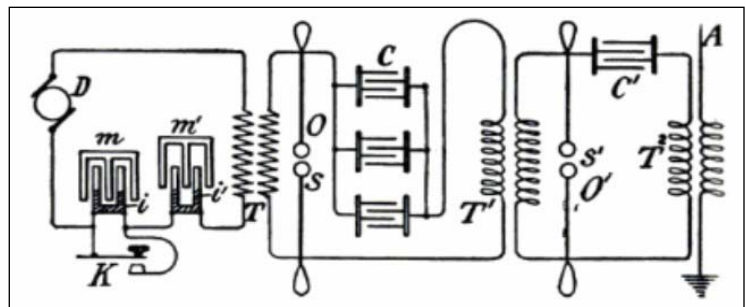
Sir Oliver Lodge (who also believed in spirituality and talking to the dead) introduced tuning in his 1898 receiver, where the inductance L of the antenna coil resonated with the capacitance of the antenna A (left). Marconi added more tuned circuits to his 1900 receiver (right).



What were the transmitted pulses like?

The transmitters used spark gaps discharging energy stored in Leyden Jars (capacitors). The pulses were short impulses of highly-damped waves, spread over a wide band of radio frequencies.

The transmitter used in the 1901 Marconi trans-Atlantic tests (right) was designed by J. A. Fleming, and used a cascade of two sets of spark gap dischargers. From a knowledge of the characteristics of the antenna and the antenna current measured by a hot-wire ammeter, the power into the antenna was 13.5 kW. The frequency spectrum is unknown but believed to be in the 500 to 1000 kHz region.



The spark rate of the transmission is also unknown, but believed to be in the range of 100 pulses per second.

Energy is defined as the amount of power expended over a given time. For example, a kilowatt is a unit of power, and a kilowatt-hour is a unit of energy. The watt is a unit of power, and the joule, or watt-second, is a unit of energy. An erg is one-ten millionth (1×10^{-7}) of a joule. The energy per pulse from the Marconi/Fleming transmitter is 13,500 watts / 100 seconds = 135 joules per pulse.

The important parameter here is the energy per pulse. How much energy is required to trip the state of the coherer?

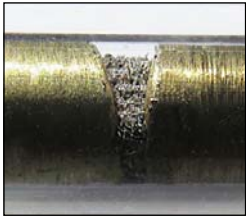
Modern Coherer Reproductions

I purchased a modern reconstruction of a coherer from David Navone of Navone Engineering in April 2010 at a Marine Radio Historical Society event at the Marconi Conference Center. Soon afterwards, Bart Lee purchased a Navone coherer. Recently, Bart and Richard Watts purchased additional Navone coherers. I tested the sensitivity of all of them.



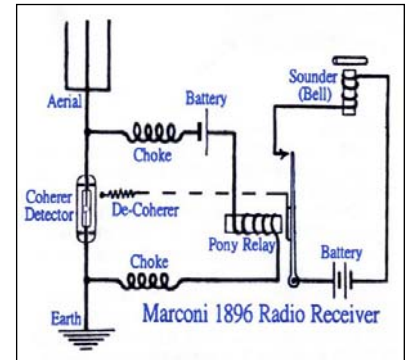
A coherer made by David Navone of Navone Engineering.

What's inside of these devices? The Navone coherer attempts to replicate as accurately as possible the 1896 Marconi design. Between brass plugs in a V-shaped gap lies a mixture of 95% nickel and 5% silver metal filings in an evacuated glass tube.



The detail of the gap (left) shows the metal filings in the V-notch. The sensitivity of the coherer can be adjusted by rotating the coherer about its axis. When gravity positions the filings at the narrow end of the gap it is most sensitive.

Navone includes a circuit (right) of a typical arrangement using a bell-ringer to tap the coherer back to its high resistance state after being activated.



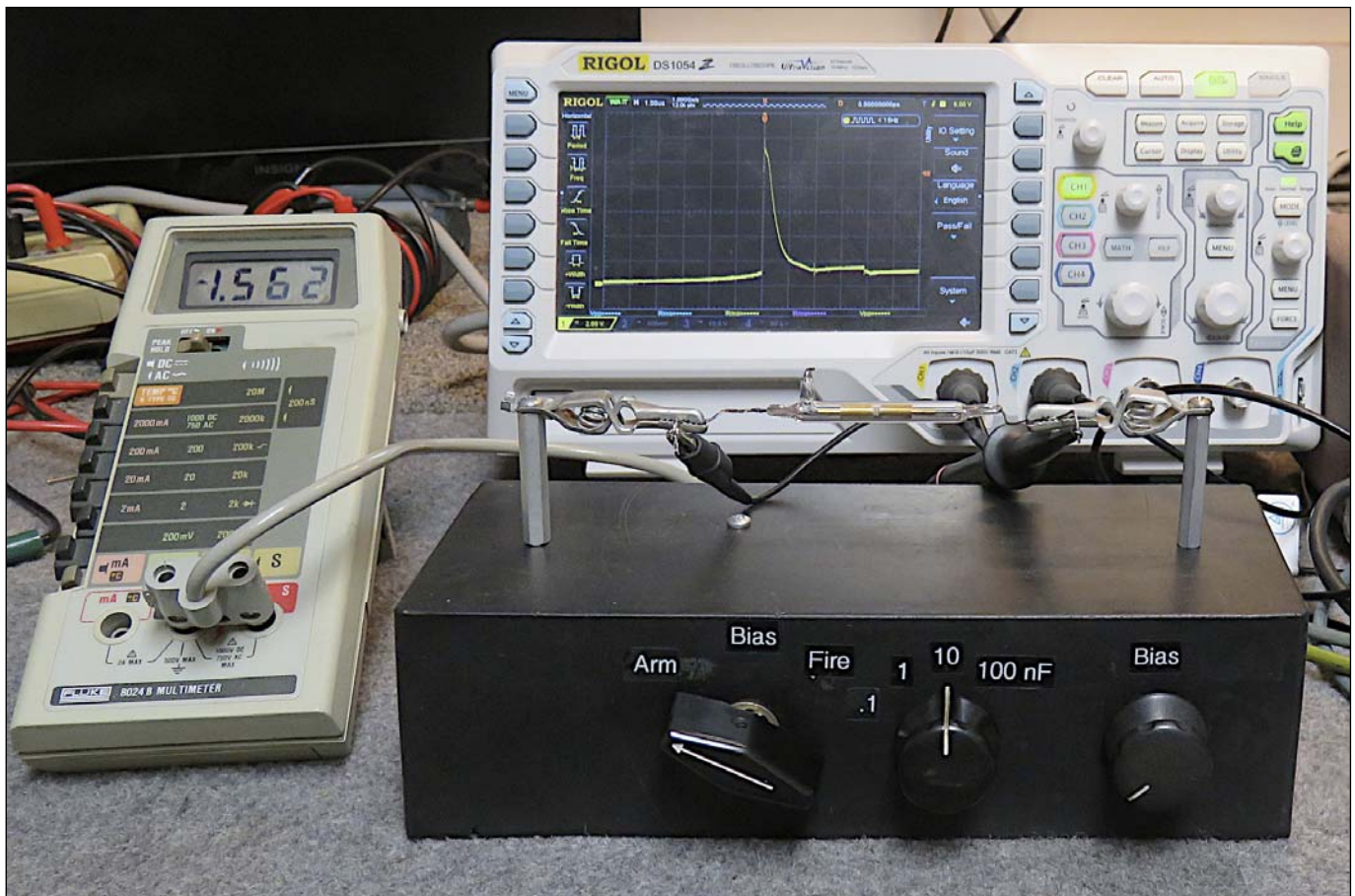
How Sensitive are the Coherers?

I tested the coherers by varying two important parameters: the breakdown voltage and the “on” resistance as a function of the energy deposited in the device.

Very little published data is available. Most of it is qualitative including no actual numbers.

I set out to determine an actual sensitivity of the four reproduction coherers. This relates directly to the energy per pulse radiated by a transmitter. The voltage across the coherer can be adjusted by changing the impedance of the circuits in the receiver. The energy delivered per pulse is a more fundamental property of the transmitter-receiver configuration.

To carry this out, I built a coherer tester (below).

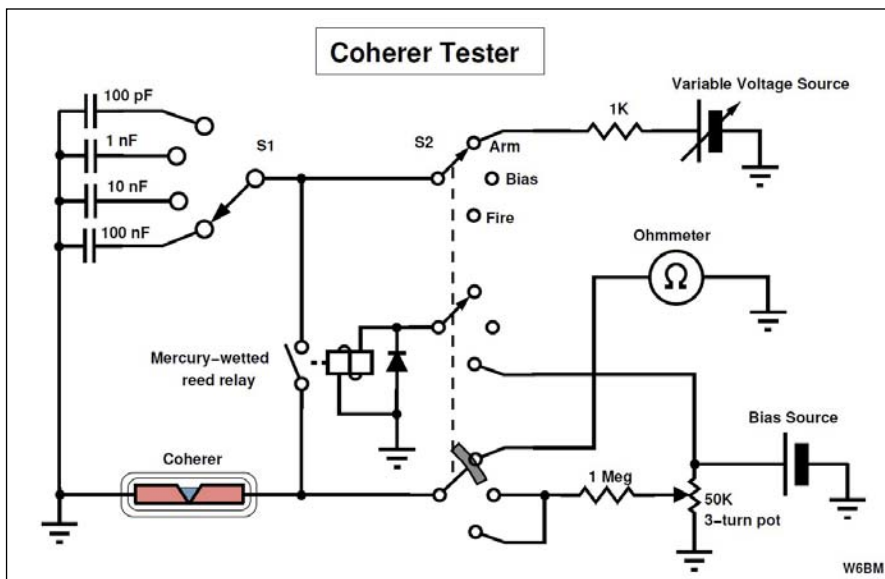


The circuit (right) includes four energy storage capacitors that are charged from a variable voltage source. The selected capacitor is then discharged into the coherer through a mercury-wetted reed relay, which delivers a clean no-bounce pulse.

An oscilloscope directly across the coherer measures the decay time of the voltage after firing, from which the “on” resistance of the coherer is calculated. The “on” resistance is calculated by observing on the oscilloscope the time for the initial voltage across the coherer to decay to $1/e$, about 37% of the peak value.

The “on” resistance can also be measured with the ohmmeter when the switch is returned to the “armed” position, but is not as reliable, as the “on” resistance can change in time due to outside disturbances.

A fixed bias can be applied to the coherer, which turned out to have little effect on the results.



My Findings

I find that the “on” resistance of the coherer is closely correlated to the amount of energy deposited in the device and less dependent on the voltage across the device. This energy needed to change the state per pulse is the most important parameter to correlate to the energy per pulse from the spark transmitters used at the time.

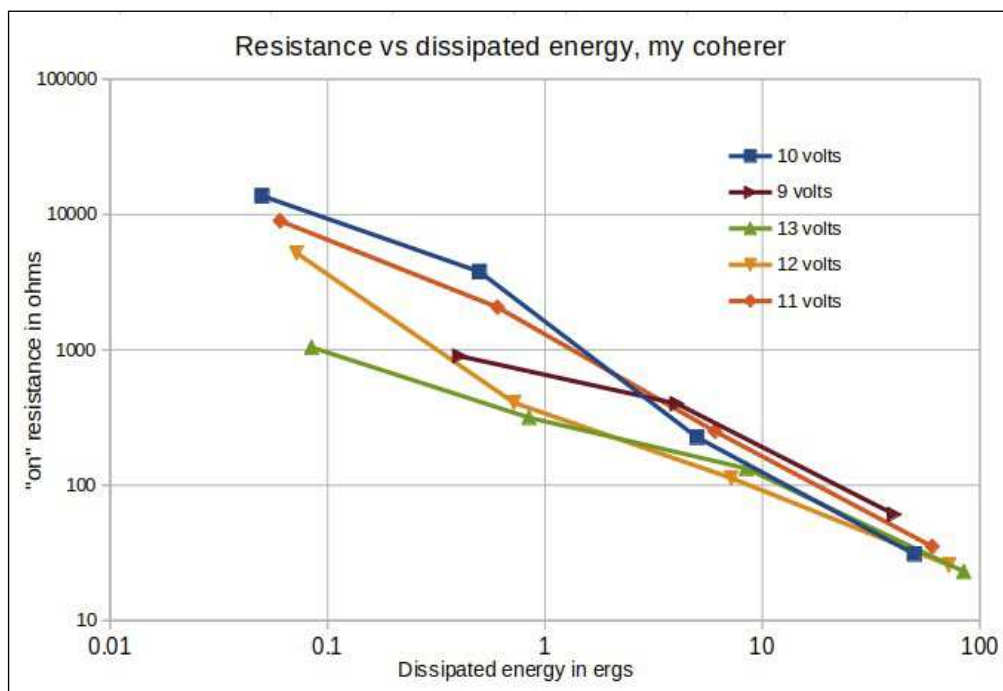
The sensitivity of Bart Lee’s first coherer is higher than the seemingly identical one I bought.

The data in the plot (right) shows the final resistance of my coherer as a function of the energy deposited and as a function of the voltage used to charge the storage capacitor.

At each value of capacitance and initial charge voltage, many trials were made and averaged together.

Needless to say, these devices do not give uniform results from trial to trial. Particularly when the charge voltage is low, the device may not fire at all. The error bars of the data are large, but not shown.

The data is plotted as the final “on” resistance vs. the energy deposited in the coherer in ergs. Ten million ergs is equivalent to one joule of energy. One megajoule or one million



joules is about the energy contained in one stick of dynamite. One erg is the amount of energy deposited by one microwatt of power in 0.1 second, a small amount.

The first data plot is for my less-sensitive device. It would not fire for less than nine volts from the charged capacitor. The data covered 9 to 13 volts, where the firing was quite reproducible. The data are plotted on a log-log plot, as it covers a wide range of value.

The data show that the on-resistance decreases as the energy dissipated in the device increases, and the independence on the voltage is small. The value of the storage capacitor varies over a 1:1000 range., from 100 picoFarad to 100 nanoFarad. The stored discharge energy $w = \frac{1}{2}CV^2$ depends on the value of the capacitor and the square of the voltage across it.

Bart Lee's coherer proved to be more sensitive than mine, shown in the plot at the right.

Bart's would fire at voltages down to one volt, but below three volts was quite erratic. The top three plot lines, 1-3 volts, show no consistent "on" resistance dependence on deposited energy.

Above four volts, the firing was consistent, and showed the same characteristics that the final resistance is correlated to the energy dissipated in the coherer.

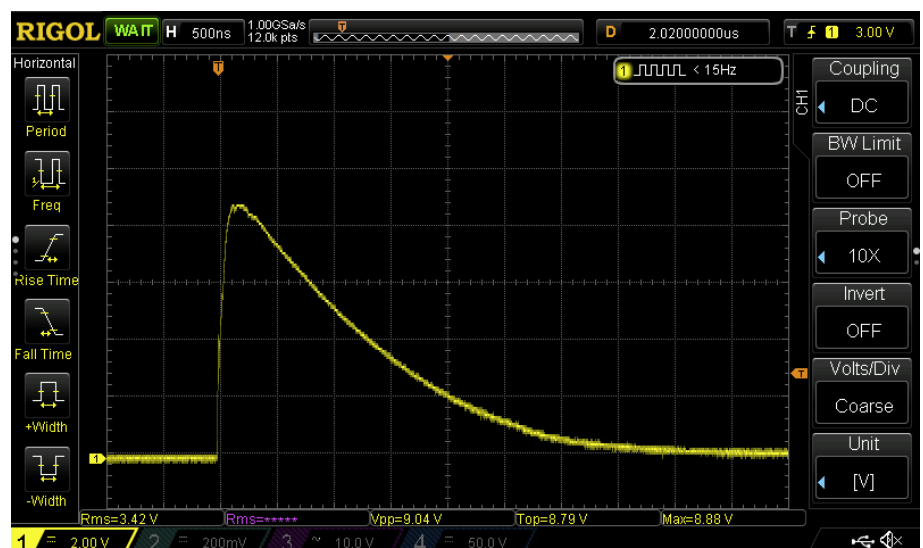
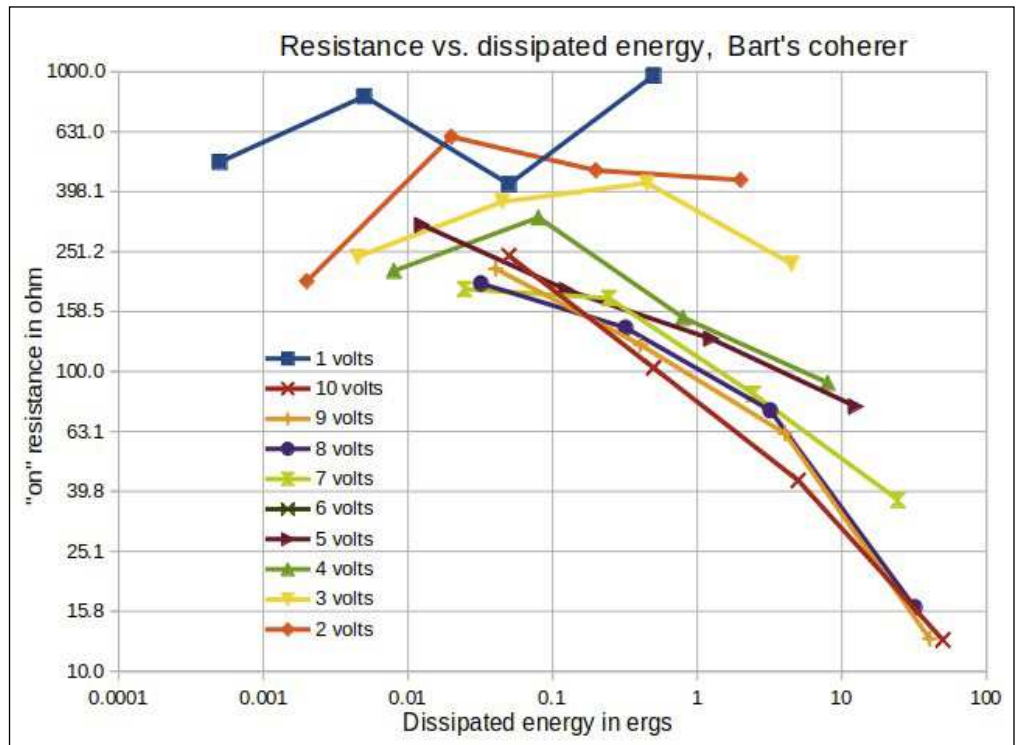
Note that for my unit, at least 0.1 ergs was necessary for consistent firing. Bart's unit has an energy sensitivity approaching ten-times better than mine.

Bart's second coherer and Richard Watts' coherer exhibited sensitivity between my and Bart's first unit.

How Fast is the Transition?

The scope trace shows a typical firing with a 10 volt charge on the energy storage capacitor C.

In this trace, at 500 nsec/division, it appears that the peak lasts about 200 nsec after the steep rise. This value seems to apply generally over a large range of conditions.



Discussion

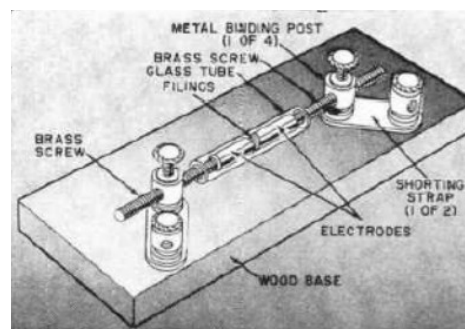
The “on” resistance of the coherer is highly correlated to the energy deposited in the device. As long as the firing voltage is above the threshold, the value of the voltage itself seems less important to the final resistance.

It seems reasonable to equate the sensitivity of the coherer to the energy deposited in a single event, as the spark transmitters of the day delivered pulses of energy, spaced further apart than the response time of the coherer. From the energy per pulse generated at the transmitter to the energy required to change the state of the coherer the antenna efficiency and propagation loss can be estimated. Pulses from a single lightning bolt could easily trip a coherer, and in fact were used for storm prediction.

This would influence the design of the indicator, the relay, meter or earphone at the receiving end. If the final resistance is low, then a less sensitive relay would be needed, or the click in the earphone would be louder.

The factor-of-ten sensitivity difference between my and Bart’s coherers remains a mystery, as they appear to be physically identical. Mine seemed to pick up some more sensitivity after many firings, but Bart’s was unused before these tests.

The May 1967 issue of *Popular Electronics* carried a coherer construction article which included the illustration (right). My tester is shown below for comparison.



Acknowledgment

Bart Lee, Esq, K6VK, for the loan of his two coherers and for help in writing this article, and Richard Watts for the loan of his coherer.

The Author

John Staples, Ph.D., W6BM, is a scientist and a Fellow of the American Physical Society and of the California Historical Radio Society. He received his Amateur Extra Class license and Radiotelephone First Class license in 1958.



The Wireless Boys of Alameda:

Part 2 - There Ought To Be a Law

By Robert Ryzewski, KJ6SBR

The city of Alameda was home to a number of young wireless pioneers as early as 1905, a time when radio was in its infancy and use of the airwaves was unrestricted. In Part 1 we met Fred Mudgett. In the aftermath of the great 1906 earthquake, his homemade station on Santa Clara Avenue was for a time the only wireless link between San Francisco and the outside world. This demonstration of the power of amateur radio for the public good, however, was only part of the story. Just a few blocks away, wireless enthusiasts Henry Heim Jr. and his friend Albert Wolff Jr. set up their own stations and explored some uses of the airwaves that teenagers just couldn't avoid. News of their hijinks reached the halls of Congress, providing ammunition for the passage of the new radio law that for the first time mandated the type of government-assigned licenses, call signs, frequencies, power, and activity restrictions that hams have been living with ever since. That said, amateurs like Henry and Albert were an important part of the development of the science—and eventually the business—of radio, and in the end one of them paid for its progress with his life. This is their story, told for the first time in more than a century.

Meet Henry Heim Jr.

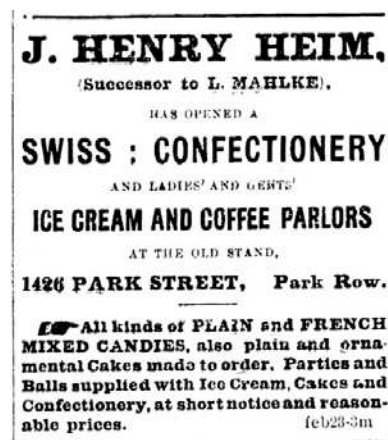
John Henry Heim emigrated from Switzerland to the U.S. in 1887,¹ where his son Henry Heim Jr. was born in August of 1891.² By 1893 the Heim family was enjoying a peaceful existence at their confectionary shop at 1426 Park Street in Alameda in the Park Row building. Here Alamedans could get "everything from taffy and molasses candy to the finest of Parisian creams and chocolate bon bons," not to mention ice creams, cakes and sherbets.³

By the time he was 14, Henry had already become fascinated with what was then called "wireless" and only years later would be referred to as "radio." On October 2, 1905, articles in the *Alameda Daily Encinal* and the *Oakland Tribune* reported that the "young genius," a "mere boy" had erected an antenna and "invented" a wireless device by which he hoped to be in communication with U.S. Navy stations at Goat Island (today's Yerba Buena Island), the Farallones, and other places. At a time when wireless was brand new, Henry's only education in the art came from the study of books: "...while other children are at play, [Henry] gives all his time to investigations which have puzzled older heads."⁴ He had "studied out the Marconi system for himself..."⁵ A later article says that he and some fellow students, probably at Alameda High School, studied up on wireless, and cites a book called "Baker's 'Telegraphing Through the Air'" as the book that was most helpful to him.⁶

Catching a Wave

We have no descriptions of what exactly Henry's system consisted of other than that it had an aerial attached to the water tower on Park Street. His station used radiotelegraphy (Morse code) rather than radiotelephony (voice), with a spark transmitter. Voice transmission was very much in its infancy although, strangely, Alameda may have had an early connection with that too.⁷

Heim used radiotelegraphy, the older and simpler system. Even that, however, wasn't very simple back then. Trickiest of all was detecting a signal. "Father of Radio" Dr. Lee DeForest would ultimately solve the problem, inventing the vacuum tube triode, in 1906. But back in '05 even crystal detectors were not yet in widespread use. Instead, all kinds of things were tried that seem bizarre to us today.⁸ The coherer, about the oldest type of detector, consisted of metal filings loosely placed between two electrical contacts in a glass tube, with a tapper to "decohere" them between signals. The DeForest

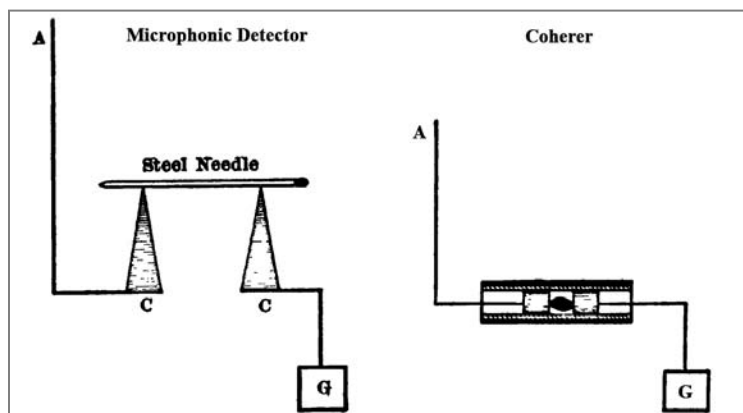


Ad for Heim's Swiss Confectionery on Park Street. *Alameda Daily Evening Encinal*, April 13, 1893.

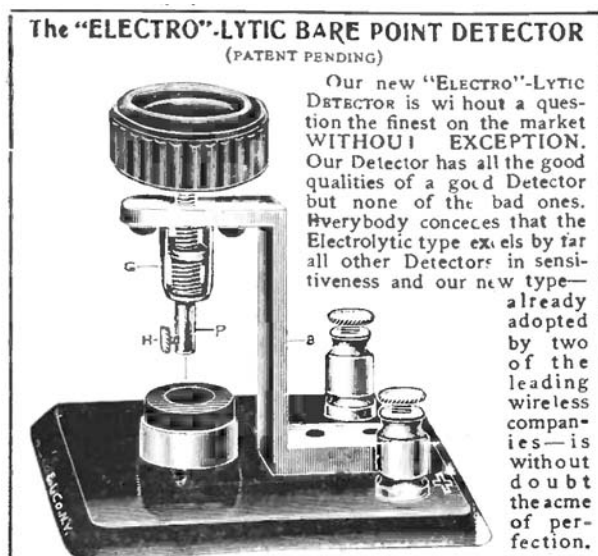
"responder" or "goo detector" was similar but used fine filings suspended in some kind of oil (the "goo"). Being "self-restoring," it didn't need a tapper. There was also a mercury type of coherer that was also self-restoring.

The most sensitive detector was probably the electrolytic detector, aka Reginald Fessenden's "liquid barretter" and the very similar (though he denied it) DeForest "spade detector". The former consisted of a very fine platinum wire barely touching the surface of an acid solution and another electrode immersed in it (or surrounding it).⁹ This looked something like Alexander Graham Bell's "water microphone," where a fine platinum wire attached to a diaphragm bobbed up and down at the top of an acid solution as it vibrated in response to sound, but it worked very differently.¹⁰ Another type of detector was the Marconi magnetic detector ("Maggie"), which involved continuously moving a weakly magnetized iron wire through a fine coil and worked by hysteresis. This had actually been invented by Ernest Rutherford in 1895¹¹ and further developed by Marconi later.

Also in use was a type of detector that worked through imperfect contact, sometimes called "microphone" or "microphonic," though it was for receiving—not sending—signals. A popular version consisted of a steel needle loosely placed atop 2 carbon blocks. These could give a tone rather than just a click like ordinary coherers. It probably beat the coherer for sensitivity but, as with the electrolytic detector, any slight vibration—someone walking by or the back-and-forth motion of a ship—would interfere. The biggest advantage it had was that one could get the carbon blocks by following around the man who replaced the carbons on the streetlights (arcs) and threw the old ones away.¹² Whittle away two of those and borrow a sewing needle from mom, and there was a wireless detector a boy could afford and build!

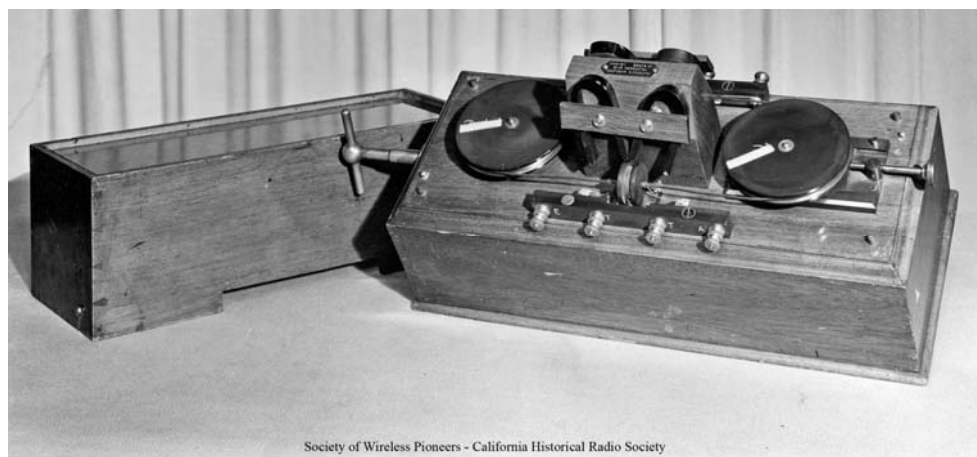


Detectors. At left is a "microphonic" detector, with "C" being sharpened carbon blocks. At right is a coherer, consisting of metal filings loosely packed in a glass tube.



Electrolytic Detector, "The acme of perfection." Looking a lot like a crystal detector, instead of a "cat whisker" touching a crystal, a very fine platinum wire barely touches the top of a dilute acid solution. *Modern Electrics*, February, 1909.

Marconi magnetic detector "Maggie." At left is the crank for the clockwork mechanism that kept the wire moving. Many a weary radioman forgot to wind it and heard nothing. Courtesy of Society of Wireless Pioneers.



Society of Wireless Pioneers - California Historical Radio Society

Which of these seemingly bizarre detectors Henry used in 1905 is anybody's guess, since none of the newspaper articles seemed to mention this. Today, any old diode you find in your junk drawer would work better than the most advanced detector available back then. As for tuning and amplification, like those work goals your boss assigns you, these were more aspirational than realistic back when Henry set up his pioneering station. As to how his transmitter produced a spark, Henry could not have done what later amateurs would do and borrow a spark coil from a Ford Model T: the Henry in Detroit had only gotten as far as the Model F! Most likely, Henry had to "roll his own."

He got a lot of coverage in Bay Area newspapers. Stories about exciting, high-tech wireless helped sell newspapers and generally increase circulation, and then as now, money mattered.

Other Local Wireless Enthusiasts

The "wireless bug" proved as contagious as COVID. Another local teenager, Albert Wolff Jr., a year younger than Henry, was also infected. Wolff's father was a partner of Henry's dad at the confectionery. The Wolffs lived on Alameda's Clinton Avenue,¹³ with Albert's aerial attached to a windmill in their house's yard. A 1907 article reports Albert was concerned that once Pacific Wireless's new station atop Mt. Tamalpais was in service, it would "burn him out."¹⁴ This means that he was using an electrolytic detector at the time: their biggest weakness was that too strong a signal would overload them, making them unusable. He needn't have worried. Either through an act of Nature (a storm that blew the antenna down) or an act of vandalism (guy wires intentionally cut) or both, that Pacific Wireless station would never become operational.¹⁵

By April of 1907, at the age of 14, "from the smallest of beginnings with the crudest and most incomplete of equipment, he [Albert] evolved an apparatus which catches the messages flying

MERE BOY PERFECTS WIRELESS SYSTEM

Henry Heim of Alameda Shows His Genius by Clever Invention.

ALAMEDA, Oct. 2.—Henry Heim, but 14 years old, and the son of Mr. and Mrs. H. Heim, of Park street, has perfected an appliance to receive messages by wireless telegraphy, and has already achieved results which warrant him in believing that he will shortly be in communication by air line with Goat Island, the Farallones and other "wireless" stations.

Young Heim, in spite of his youth, has a marked aptitude for mechanics, and is considered something of a genius in his delving into the mysteries of electrical science. On Saturday afternoon he spent some time, assisted by George Heldt, aged 10 years, in stringing the copper wires and rings necessary to record wireless messages, across from the lofty tower of the Water Works building on Park street to his room in Park Row building, where he has his instruments. The boy has studied out the system for himself, without any instruction other than that he has obtained from books he has eagerly studied. He is an



HENRY HEIM.

Henry and his wireless station got plenty of press coverage. *Oakland Tribune*, October 2, 1905, p. 12.



Albert Wolff, Jr.
Alameda Daily Argus,
April 24, 1907.

from the wireless stations at Goat Island, Mare Island, Oakland, San Francisco, the Farallones, the ships that sail the Pacific, and even from faraway San Diego." His transmission distance was much less, extending not much farther than TG, the U.S. Navy station at Mare Island.¹⁶

At still closer distances, a letter to Hugo Gernsback's *Modern Electrics* explains a clever way that Albert and Henry found to communicate.¹⁷ Because they were both on the same power line circuit, one of them could "transmit" with his spark gap not even connected to aerial or ground and the other would hear sharp buzzes using an arc lamp as detector. "In other words, we are telegraphing over the city's power



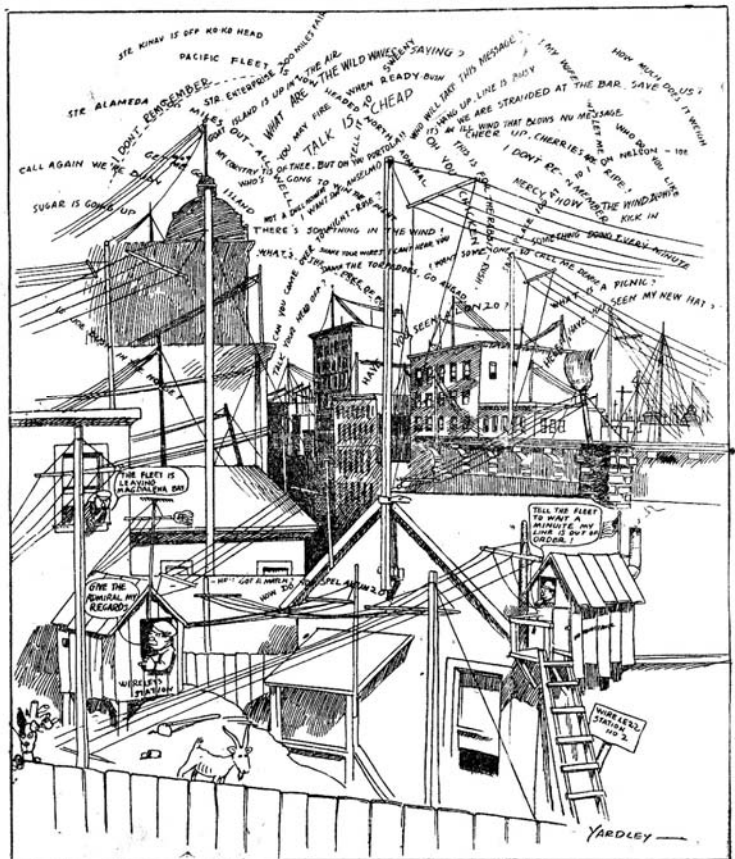
Work on the "immense transmitter coil" of the Pacific Wireless Station on Mt. Tamalpais. Meant to communicate with Hawaii, it never became functional and was abandoned. A. Krenke at left, a Mr. Bradford in the foreground, others unknown. Courtesy of Society of Wireless Pioneers.

In those exciting times, wireless messages from many sources were filling the air. Amateur wireless stations were springing up all around the Bay Area like mushrooms after a rain. By the end of 1908 there were already two competing amateur organizations, the Bay Counties Wireless Telegraphy Association (BCWTA), and a Bay State organization.¹⁹ Henry and Alfred belonged to the former. Its membership roster reads like a "Who's Who" of early radio, with people like Lewis Clement (Oakland), Laurence Chilcote (Ashby Avenue, Berkeley!) and Frank Rieber (San Francisco) all of whom would go on to distinguished careers in science and technology. Another BCWTA member was its president, Haraden Pratt, who would eventually advise Presidents Truman and Eisenhower. Henry's saga, mentioned in Part 1,²⁰ caught the attention of Mudgett (FM), who would communicate with Henry Heimlich. You can choose your own callsign... and frequency... and power. Here in the freedom-loving USA there just weren't any rules about wireless.

Many of the signals Henry and Albert picked up were from U.S. Navy stations. In those early years, the Navy transmitted "in the clear," without bothering to encrypt and decrypt messages. This was considered too burdensome to do short of war. Most messages would have been routine, but once in a while the boys could pick up information not available elsewhere. Newshounds of the day could sniff a good story and weren't shy about urging the boys to let them in on the breaking news. Technically, there was nothing illegal about it: there was no law requiring overheard private messages to be kept private.

A black and white photograph showing a laboratory setup for studying the effect of temperature on the rate of reaction. A reaction flask is placed in a water bath, and a gas syringe is connected to it. A thermometer is used to monitor the temperature of the water bath. The setup is placed on a table.

What Are the Wild (Wireless) Waves Saying



CALIFORNIA HISTORICAL RADIO SOCIETY

waves"),²⁴ two deaths aboard the transport *Thomas*,²⁵ and two seamen from the U.S.S. *St. Louis* drowned during an abandon ship exercise.²⁶ For this last item, the message was sent to alert local police should any bodies happen to wash ashore. Names of the victims were discretely withheld in all cases.

But it was only a matter of time before some decidedly *indiscreet* intercepts appeared in the papers via wireless. Just as many expected the internet would help make for world peace and universal brotherhood, with little or no downside foreseen, so wireless was at first expected to improve lives through better commerce, safety, and more current news. Very quickly, however, a darker side appeared. "Alameda Boys Construct Wireless; Intercept Government Messages: BARE NAVY SECRETS AND TAKE BILLETS FROM OFFICERS," screamed Hearst's *San Francisco Examiner* in 1907.²⁷ "Wireless secrets of the United States Navy," it begins, "from messages that pass between Admirals when disquieting talk of war with Japan is in the air to confidential communications that are sent by gallants of the quarterdeck to boudoirs ashore, are being daily tapped by two boys in Alameda..."²⁸ "They are compiling a book of the choicest confidences they intercept," the *Examiner* warned, "and it already contains sufficient entries to precipitate domestic war in many quarters if not a conflict of more far-reaching import."

Messages from officers to arrange a rendezvous with their shoreside femmes, single or married, are cited. One of them was "Mrs. Blank, Alameda—Will see you sure to-morrow night. Didn't like to take too many chances yesterday. We must be discreet. —The Lieutenant." Another was from "Bluebeard." "Love-making by wireless is the latest achievement of electrical science," observed the *San Francisco Globe*.²⁹ It made for a juicy story, but how would the messages from love-starved sailors get to their paramours? Were the ladies spending their evenings at their receivers with headphones on, ready to take down 20 wpm continental code? Did Western Union deliver the message with special instructions to first make sure Hubby wasn't home? The story sounds very dubious... until you read the account of George H. Clark, the Navy's first civilian radio expert:³⁰ "If one of them [a naval officer] wished to send a message from their ship to some sweetheart ashore, the ship's wireless called the nearest shore station, prefaced his remarks 'take a note, old man' and then sent the message of love, which was duly forwarded by telephone."³¹ So that's how they did it.

The more serious charge in the *Examiner* and other articles like it was that national security was being compromised. Henry noted that most of the messages he got weren't important. "Of course, I would never think of repeating a message if I thought it was important and should be kept secret," he assured the reporter. Later on, he and Albert would "emphatically deny that they ever made any messages public and declare that the alleged messages contained in the article were 'made up' by the reporter."³²

But there was also the matter of what they might be transmitting rather than just receiving. "Henry Heim said he frequently uses the names of Fighting Bob Evans [Admiral Robley D. Evans] and other mighty men of the sea when he is querying a warship for information," the *Examiner* article says. This was truly ironic, as the real Admiral Evans was heavily involved in government efforts to regulate wireless. What else did Henry do? "Once, just for fun... he ordered a cruiser about to sail to delay its departure." But "something wrong was evidently suspected, for the cruiser sailed and Heim was deprived of experiencing how it felt to be an admiral." Operators tended to know each other in those days, so if this really happened it's possible the radioman on duty recognized Henry by his "fist" (idiosyncrasies in his Morse sending).

Wireless Anarchy

Any amateur competition for the airwaves, however innocent, could run afoul of government and commercial operators, of course. In a 1908 article Karl H. von Wiegand (later a noted war correspondent) listened in at a Bay Area amateur station and "heard the Mare Island navy yard operator burning a hole in the



Rear Admiral Robley D. "Fighting Bob" Evans, hero of the Spanish-American War, Commander-in-Chief of the U.S. Atlantic Fleet and Commander of the Great White Fleet. It wasn't always obvious if orders received by wireless were coming from him or a soda jerk in Alameda. Naval History and Heritage Command NH 49662.

atmosphere with his sulphuric words, swearing at an American boy somewhere in Alameda for 'butting in' with his 'spark' when he was working Point Loma."³³ He noted that Alameda and Berkeley "are fairly dotted with" amateur stations but generally viewed this in a positive light, singling out Henry and Albert's stations as "examples of what the perseverance, ingenuity, and inventive genius of the alert American boy can accomplish." U.S. Navy officials, however, took a much dimmer view of their wireless shenanigans and the *Examiner* article—"Bluebeard," admiral impersonation and all—was forwarded to the US House of Representatives Naval Affairs Committee as part of the navy's evidence in arguing for a radio law. It was a kind of "local boys make bad" story, and can still be found in the Congressional record.³⁴

Henry and Albert weren't the only amateurs to attract attention. Over in Brooklyn Lloyd Espenschied and another young experimenter made the news by intercepting New York Navy Yard and commercial messages with their homebrew sets.³⁵ Out in Cambridge, Massachusetts Harvard student R.A. Wood (call letter "R"), with his 1 kw station, regularly used the primetime airwaves to discuss his homework and generally make a nuisance of himself, "continually calling ships, commercial and navy stations. When any of the above come in on him he will use language which is not fit to print."³⁶ If there was any way to close his station, said a United Wireless executive, "I think it would be a good idea to get rid of him." Alas, there was no legal way to silence, much less prosecute, him.

Eventually, these kinds of unfavorable reports reached a critical mass, and something had to be done, though the wheels of justice turned ever so slowly. In early 1908 President Theodore Roosevelt charged up Capitol Hill (figuratively speaking), conveying a letter to Congress calling for a law making it a punishable offense to interfere with official messages.³⁷ "Swish! swish! went the big stick over the head of the American boy," concluded the *San Francisco Call*.³⁸ Would new laws drawn up by legislators who didn't know the difference between receiving and transmitting bludgeon this promising generation of entrepreneurs into ethereal silence?

Of course, amateurs weren't the only ones causing interference, though they got most of the blame. Tuning, or "syntony" on many early transmitters and receivers was poor, with signals sent and received over a broad range of frequencies and with high damping, making them more like bursts of noise than signals. And in the Wild West of unregulated airwaves, on-air threats, intentional interference, and profanity were common to amateur, commercial, and government operators alike. "The only way in which urgent messages could be gotten on the air when two gossiping cronies held the ether was to lay a book or other weight upon the transmitting key and thus blanket them with such a roar of interference that they were obliged to desist."³⁹ By 1910 Jack McCarthy, heading the wireless telephone company founded by his late brother Francis J. McCarthy,⁴⁰ was blanketing San Francisco's airwaves nonstop with important communications like the "Pickle Lily Polka" from a phonograph at his station downtown.⁴¹ He took particular delight in interfering with U.S. Navy communications. "There are two courses open to the navy," he mused, "one is to get better equipment and drown me out, or—buy my phone." The same article informs us that the navy wanted no part of voice transmission because when they'd tried it out earlier the phones were "choked to the nozzle with profanity," and "looked upon as deposit vaults for the safe keeping of harsh language." Having to tap in all those extra characters for obscenities discouraged the use of too many of them by radiotelegraphy!

Lee DeForest, whose on-the-air language was much more refined, cited another example of commercial interference: "It was only day before yesterday that a disgruntled operator, discharged from one of the operating companies, came to me and said he was going to put up a



The call for a U.S. radio law was seen by many as a direct threat to amateur radio. *San Francisco Call* March 29, 1908.

wireless station within two doors of another station belonging to a rival company, and that within a week that company would offer him \$1000 to get out. It is a new sort of wireless blackmail, you know."⁴²

Coming from DeForest, though, this was a case of the pot calling the kettle black. During U.S. Navy testing of his rival Fessenden's "interference preventer"⁴³ the operator at the nearby DeForest Wireless station was ordered to hold down his key. Sparks then flew and acid blew out of Fessenden's liquid barreter, causing a few snickers among the Navy brass and ensuring that they didn't take claims of tuning out interference seriously afterward.⁴⁴

Friend of the Amateur?

DeForest's attitude toward amateur radio operators in those days is worth noting. Years later, after World War I and for the rest of his life, he would be known as a great friend of the amateur and boast that at his company, he hired *only* amateurs because they were the only ones with the knowledge and drive to get the job done. But back in 1910 he saw them a little differently. "One fails to find in the last years a single instance of an important invention by, or patent issued to, one of the class of young enthusiasts who are popularly known as 'amateurs'," he testified before a House Naval Affairs Committee.⁴⁵ "They have done absolutely nothing to develop the art or to solve any of the intricate problems which face the commercial companies..." Furthermore, the numberless "amateur" stations (his quotation marks) that he said "infested" cities were a nuisance. He cited "instances... without number where a youth with an outfit costing not \$20 has sent out false calls of distress from alleged sinking vessels, faked official messages, signed bogus 'call letters,' filled the air with profanity, and all for no object but 'fun.'" He suggested that radio licenses should be restricted to "organized companies having a minimum capitalization of, say, \$100,000, or operated by independent experts of well-recognized skill and standing..." (Apparently he was concerned that his future company might not be so well capitalized.) A similar opinion of amateurs was expressed by wireless pioneer Walter Massie, who held that they deserved no representation at all in formulating a radio law. He said he had investigated "supposed inventions that amateurs have sent to me... and I have found in each case it was a waste of energy to experiment and try to get anything out of them."⁴⁶

Writing from his Park Avenue address, "Father of Radio" DeForest revealed that aiding and abetting these juvenile pirates of the ether were "manufacturers of cheap apparatus" that infringed patents and had "sprung up, mushroom-like by scores" to pander to this crowd. How much DeForest's later change of heart towards amateurs was due to the realization that his company could sell audions to them we just don't know. He may have been playing the bad amateur card in his Congressional testimony to deflect criticism from companies like his own, scapegoating the weakest possible target, and/or trying to bolster his argument in favor of a radio law, which he and many others knew was badly needed.

Bills, Bills, Bills

The call for federal legislation regulating the use of the airwaves was almost as old as wireless itself. "Although some form of regulation had been advocated ever since the turn of the century, in this Nation, dedicated to the philosophy of free enterprise, it was slow to materialize."⁴⁷ In 1906 an international conference in which the U.S. participated adopted a convention requiring all operators to be licensed, laying out frequencies that could be used (300-600 meters or >1600 meters for ships), establishing "SOS" as the universal distress call, and generally providing a starting point for subsequent radio laws. The U.S. had been instrumental in pushing through some important provisions, including the one by which Marconi could no longer refuse to accept messages from ships equipped with wireless sets made by other companies.⁴⁸

But subsequently, to everyone's surprise, the U.S. Senate wouldn't ratify the convention. Commercial interests, especially American Marconi and Fessenden's company, NESCO, had bitterly opposed it. Oh, how the commercial powers screamed! Such a law was unnecessary and unconstitutional, like declaring martial law in a time of peace. It was premature, it would stifle innovation, it would be like yoking a horse to an ox, binding us to mediocrity. The word "evil" came up. Was it really too much to ask to just be left alone? NESCO summed it up in its statement that "this convention, if ratified, would be repugnant to the organic law of this country and contrary to the policy of the Government, and that enforcement of its provisions would bring ruin to those who have made the wireless telegraph what it is and prove detrimental to the ultimate welfare of the public." In truth, NESCO wasn't handling commercial

messages, so interference wasn't a daily problem for them. Instead, they were trying to sell Fessenden's portfolio of patents for interference prevention, and if ratifying this law would really reduce QRM (manmade noise), who would want it?

In opposing ratification American Marconi was particularly tone deaf in dealing with the authorities, alternately whining and trying to bully them into establishing a barely disguised monopoly. Requiring Marconi to handle messages from ships with non-Marconi sets—which, as they saw it, infringed their own patents—they found especially loathsome, like asking someone whose car has been stolen to pay for the thief's gas.⁴⁹ But for DeForest and his company (the thief?), that provision could only help, so it favored ratification, and it played up its own patriotic, all-American roots.

Amateurs like Henry and Albert who'd had free reign over the airwaves feared with good reason that any radio law would legislate them off the air, making them temporary allies of American Marconi and NESCO. But who would ultimately represent their interest? With the American Radio Relay League yet to be formed, Hugo Gernsback rallied amateurs by warning them of what was going on, forming his "Wireless Association of America," and getting his *Modern Electrics* readers to send thousands of letters and telegrams to Washington. Years later, after a bill acceptable to all parties had been passed, Gernsback, with his usual boardinghouse reach, would claim the whole cake for himself, saying "unquestionably the entire credit for obtaining the amateur's rights belongs to *Modern Electrics*."⁵⁰

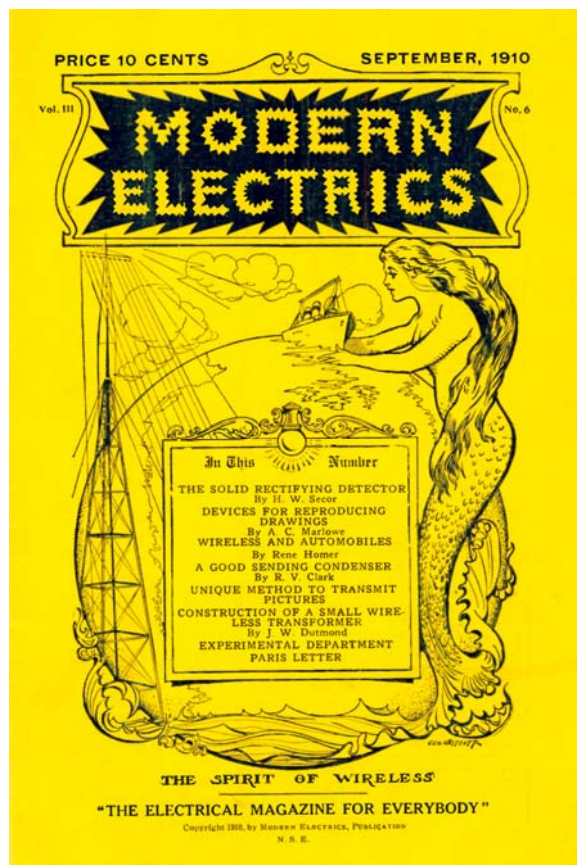
Well... not quite. Reading through Congressional testimony shows that a group called the Wireless Association of Pennsylvania⁵¹ had its man in Washington, a Mr. Charles H. Stewart, the only amateur radio representative at some key hearings. Stewart calmly and efficiently fielded questions and educated legislators who, for example, hadn't known that there were people only interested in receiving, not transmitting, by wireless, and that licensing them was unnecessary if the goal was to prevent interference.⁵² With rational arguments and by shrewdly picking his battles, arguably Stewart did at least as much to protect amateur radio rights as Gernsback, a fact long since forgotten.

In defense of amateur radio, it was noted that this hobby would naturally produce a generation of radio operators sorely needed in times of war. More interesting, though, is what wasn't brought up. As seen in Part 1, amateur Fred Mudgett of Alameda had helped the navy relay messages in the wake of the 1906 San Francisco earthquake and was for a time their only link from there to the outside world.⁵³ This and other instances of the valuable services that amateurs had already provided would have made a powerful counterpunch to examples of their bad behavior but were mentioned little if at all in Congress.

In 1910 the first U.S. radio law ("Radio Ship Act") was passed, requiring ships with 50 or more people traveling more than 200 miles (except on the Great Lakes) to be equipped with wireless and have a skilled radio operator. The resulting increase in the number of stations on the air made for even more interference. The law said nothing about amateurs. Meanwhile, a new international conference



Radio laws were slow to materialize in the U.S., unlike Great Britain, where regulations almost preceded the invention. *Daily Telegraph (London)* April 12, 1912.



Hugo Gernsback helped organize amateurs to oppose the unreasonable provisions of proposed radio laws through articles in his *Modern Electrics*. *Modern Electrics* September 1910.

on radiotelegraphy was scheduled for London in 1912, but since the U.S. hadn't ratified the earlier convention, it wasn't going to be invited to that party. U.S. Senators, realizing that this country would thereby lose all future influence on international wireless regulation (and corresponding junkets abroad), quickly went back and ratified the earlier convention. Ratification was catalyzed by the *Titanic* disaster, during which, it was alleged, almost every amateur station in Eastern North America went on the air, contributing to the chaos.⁵⁴

Ratifying the Berlin convention meant that U.S. laws supporting its provisions were needed. After many abortive attempts (e.g., the Roberts Bill, the Burke Bill, the Depew Wireless Bill), which were generally unfriendly to amateurs, an amended form of what was known as the Alexander Bill was approved in 1912 and became the law of the land the following year.⁵⁵ This was the first to require federally assigned call signs and licenses, the latter revocable for cause.⁵⁶ It limited amateur power to 1 kW and wavelengths to the famous "200 meters and down," (frequencies at or above 1.5 MHz) which at that time were thought to be useless, long waves being universally preferred by eminent authorities. When amateurs later proved that this was really the most useful part of the radiofrequency spectrum, their reward was to have all but a few slivers of it taken from them and given to commercial and government interests. The Radio Law of 1912 prescribed penalties for unlicensed operation, malicious interference, sending false distress calls, divulging private messages, etc. The Secretary of Commerce and Labor would be in charge, though later this was changed to the Federal Radio Commission and then the Federal Communications Commission. There would be many changes to the regulation of wireless from that time till now, but the Radio Law of 1912 established the framework of rules still familiar to today's ham radio operator.

By the end of 1913 about 2000 amateurs had applied for licenses, but since there were estimated to be 60,000 nationwide, most had not. They were either unaware that "this means you" or they just didn't care.⁵⁷ And even duly licensed amateurs sometimes stretched "200 meters" to mean 300, and "1 kW" to mean 2 or 3. It took a while before the Secretary of Commerce actually had the resources to enforce the law, but even before that, fear of making their station a target for shutdown made even unlicensed operators more wary of openly interfering with others. The law was beginning to work and amateur radio lived on.

Going Pro

A search of early call books from 1913 on turned up no records of Henry or Albert being licensed hams, although many other Alamedans (and the interestingly named Mr. De Forest Mocker, 6AV, in Capitola) were. Albert stayed in the East Bay, worked as an electrician at Mare Island in the early 1940s,⁵⁸ and died in Alameda in 1963.⁵⁹

We know more about Henry. He went to work on the biggest commercial wireless installation in Western North America, the "Marconi high power" station, with an enormous spark transmitter in Bolinas and the receiver at Marshall, California. In those days, geographically separating the two was the only way to avoid self-interference. The station linked North America with Hawaii, which in turn linked to all of Asia via Japan. Unlike the abortive Pacific Wireless Mt. Tam effort, this one would actually work.

Even today the gargantuan specs for the Bolinas station are hard to believe. According to the engineer in charge, Alexander Seidl, it had two transmitters, each of 300 kW and used alternately, both operating at the lowdown frequency of 6,700 meters (44.77 kHz)!⁶⁰ A 2,700-foot antenna was supported by 325-foot steel masts, much shorter than the 10-mile-long receiving antenna at Marshall. Although all of that early equipment is now long gone, as you may know, the Bolinas site is still there with station KPH, hosted by the Maritime Radio Historical Society (www.radiomarine.org), while the Marshall site is now the Marconi Conference Center and State Historic Park. Both are worth a visit.

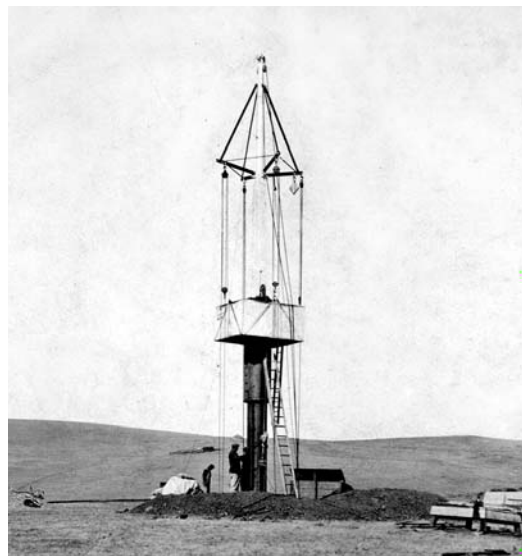


The U.S. Radio law took effect in 1913 but many amateurs remained unlicensed until the Department of Commerce had the resources to enforce it. Federal radio inspector and date unknown. Courtesy of Doug Crompton.

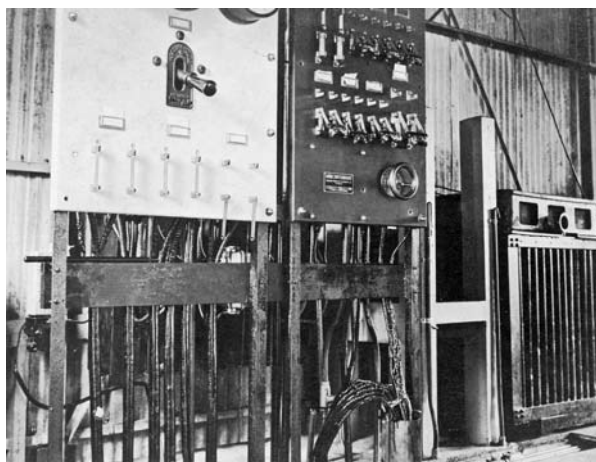
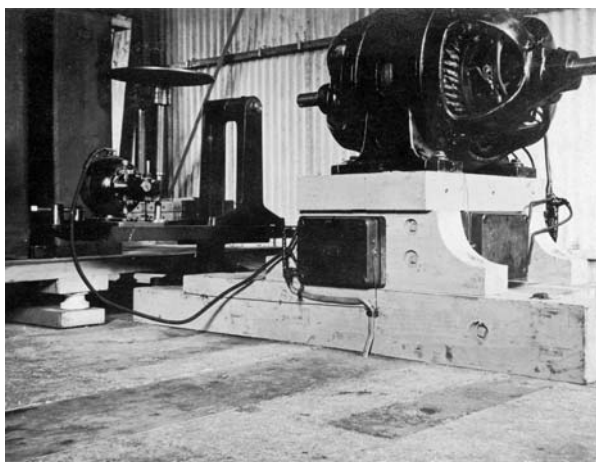
But back in 1913, when Henry Heim Jr. worked at Bolinas, it wasn't a place for brightly dressed bicyclists or Sunday picnics. It was instead a well-financed construction project expected to quickly turn a sizable profit for investors. The pressure was on to get it up and running ASAP. And half a century before OSHA was created, you can bet that Safety was not yet Job 1.

On August 18, 1914, Henry Heim Jr. died by electrocution while working at the Marconi high power station in Bolinas. He "was at work in the power house at Bolinas Tuesday night when he came in contact with the electric current. A high voltage passed through his body, causing instant death."⁶¹ His supervisor at the time was none other than his fellow amateur radio enthusiast and Bay Counties Wireless Telegraph Association member, Haraden Pratt, whose only statement on the matter was a cold one: "my only technical assistant electrocuted himself."⁶² Henry, of course, couldn't posthumously apologize to Pratt for having inconvenienced him.

To make matters even more macabre, an accident involving his body followed. After an inquest held in San Rafael, the funeral director conveying the body back to Alameda got lost near San Quentin. In a hurry to catch the Sausalito ferry, he drove too fast around a curve, lost control of his car, and plunged over an embankment.⁶³ He sustained minor cuts and bruises and was treated by the prison doctor. Henry's body was finally sent home for cremation. He had lived to see only 23 years and was in the process of being elected an Associate of the Institute of Radio Engineers, precursor to today's IEEE, when he died.⁶⁴



Starting the erection of mast #3 for the Marconi high power station in Bolinas, California. Courtesy of Society of Wireless Pioneers.



Two views of equipment believed to be at the Marconi high power station in Bolinas. Courtesy of Society of Wireless Pioneers.

Epilogue

We've seen that Alameda was a hotbed for early amateur radio activity, a hobby from which future ranks of radio operators, inventors, industrialists, electricians, technicians, and engineers would emerge to populate the ranks of military and civilian electronics. From primitive wireless, radio, and then finally "wireless" again as we know it today would develop. In the free-for-all of the early days, these daring teenagers with their kilowatt spark transmitters presaged both the best and the worst of what the field would later become. The best of it saved lives; the worst led to regulations that effectively keep the etheral peace even today. But for them it was above all *an adventure*, although sometimes a tragic one. How much more of an adventure could these Alameda kids experience? Tune in next time.

Acknowledgements

Special thanks go out to the sages of radio history at CHRS, Mike Adams and Bart Lee. Thanks are also due to Elizabeth Creely, Doug Crompton and Michael Levy (UC Berkeley Law Library). Finally, this publication would not be possible without the fine work of the journal editor, Richard Watts.

Footnotes

- 1 "No Word is Heard From Alamedans in Germany," *Evening Times-Star and Alameda Daily Argus*, August 17, 1914.
- 2 Twelfth Census of the United States (1900) for Alameda, California, Supervisor's District No. 1, Enumeration District No. 311, Sheet 6.
- 3 "Henry Heim Confectionary," *Alameda Daily Encinal*, May 12, 1904.
- 4 "Mere Boy Perfects Wireless System," *Oakland Tribune*, October 2, 1905.
- 5 "Young Henry Heim as an Inventor," *Alameda Daily Encinal*, October 2, 1905.
- 6 No such book could be found in a recent search. However, this could really be Ray Stannard Baker's "The Boy's Book of Inventions," which has chapters entitled "Telegraphing Without Wires" (about Marconi) and another called "Through the Air" (about airplanes). If so, very little help was provided as it gives no instructions at all on how to build a transmitter or receiver.
- 7 As Mike Adams points out, by at least one newspaper account another teenager, Francis J. McCarty, inventor of the McCarty Wireless Telephone system, also lived there in Alameda in 1906. By another, he was publicly demonstrating his wireless telephone system in Alameda in 1904. Had Francis met with and inspired Henry and the others? We can only speculate.
- 8 An excellent review of the state of the art for detectors and other radio station components in the early years of the twentieth century was provided H.L. Chadbourne, in his so far unpublished 1984 manuscript "Leonard D. Wildman and the First Alaskan Radio (Safety Harbor - St. Michael)." CHRS is currently working on making this available.
- 9 Most of these detectors are reviewed in Mayes, T.L. *Wireless Communication in the United States* (New England Wireless and Steam Museum, East Greenwich, R.I., 1989), Chapter 3. A much more detailed and extensive discussion can be found in Phillips, V.J., *Early Radio Wave Detectors* (Science Museum, London, 1980).
- 10 Benjamin L. Brown, "Telephone Dispute: Resolving a 144-Year-Old Controversy," *Proceedings of the IEEE* 2020;108:2083-2096.
- 11 Rutherford, E. A Magnetic Detector of Electrical Waves, and Some of its Applications. *Phil Trans.* A. 1897;189:1-24.
- 12 Jane Morgan, *Electronics in the West: The First Fifty Years* (National Press Books, Palo Alto, 1967), p. 23.
- 13 "Alameda Boys Construct Wireless; Intercept Government Messages," *San Francisco Examiner*, September 29, 1907.
- 14 "Fourteen Year Old Alameda Boy and His Wireless Work," *Alameda Daily Argus*, April 24, 1907.
- 15 Bart Lee, "Wireless Comes of Age on the West Coast," *AWA Review*, 2011, Vol. 24, p. 250.
- 16 "Alameda Boys Construct Wireless," *San Francisco Examiner*, op. cit.
- 17 Henry Heim Jr., Letter to the Editor, *Modern Electrics* March 1909, p. 433.
- 18 See, for example, "Wired Wireless! Insures Secrecy in Sending Radio Messages," *Radio World*, February 3, 1923, p. 6.
- 19 "Officials Order an Investigation," *San Francisco Call*, December 17, 1908.
- 20 Robert Rydzewski, "The Wireless Boys of Alameda, Part 1," *Journal of the California Historical Radio Society*, Vol. 41, No. 1, Spring/Summer 2022, p. 19.
- 21 L.M. Clement, "Operating Experiences of a Pioneer," *Sparks Journal* Vol. 7 No. 4, June 21, 1985, p. 7. Available at https://archive.org/details/sowp_sparks_journal/Vol7No4. In his reminiscences many years later, Clement remembers Mudgett as a pilot whose house overlooked the bay, but it's likely that either this description actually applied to another Alamedan equipped with wireless, his grandfather, Captain E.M. Freeman, or Clement was thinking of a trip to Fred Mudgett's antenna terminus at the top of City Hall tower.
- 22 "Wireless Caught by Boy Operator," *Oakland Tribune*, July 25, 1910.
- 23 "Fourteen Year Old Alameda Boy and His Wireless Work," op. cit.
- 24 "Wireless Tells of Sea Disaster," *Alameda Daily Argus*, June 19, 1907.
- 25 "Catches Wireless from the Thomas," *Alameda Daily Argus*, August 12, 1907.
- 26 "Henry Heim Receives Two Wireless Messages," *Alameda Daily Argus*, September 25, 1907.
- 27 "Alameda Boys Construct Wireless," *San Francisco Examiner*, op. cit.
- 28 The "talk of war with Japan" in 1907 relates to a generally forgotten bit of history in which Japan contributed to relief groups in the wake of the San Francisco earthquake, but the San Francisco Board of Education shortly thereafter voted to ban Japanese-American students from attending "white" San Francisco schools. Following race riots and the intervention of President Theodore Roosevelt, a "Gentlemen's Agreement" was reached whereby Japan would allow no further emigration to the U.S. and the U.S. would place no further restrictions on the Japanese in America.
- 29 Quoted in "Opinions of the Press," *Pomona Progress*, May 26, 1909.
- 30 George Clark is also notable as the founder of the George H. Clark Radioana collection at the Smithsonian, a valuable repository of historical documents and photographs.
- 31 Quoted in Linwood S. Howeth, *History of Communications-Electronics in the United States Navy* (Bureau of Ships and Office of Naval History, Washington, D.C., 1963) p. 107.
- 32 Karl H. von Wiegand, "Stop it, Kid! Cries Congress to the American Boy," *San Francisco Call*, March 29, 1908, p. 3.
- 33 von Wiegand, op. cit.
- 34 *Hearings Before a Subcommittee of the Committee on Naval Affairs of the House of Representatives, H.J. Resolution 95 A Bill to Regulate and Control the Use of Wireless Telegraphy and Wireless Telephony* (Washington, D.C.: Government Printing Office, 1910), p. 110. Available at https://books.google.com/books/about/Hearings_Before_a_Subcommittee_of_the_Co.html?id=FwQ9AAYAAJ. Accessed May 20, 2022.
- 35 "Brooklyn Boy an Expert: Curtis and His Partner Know the Code Signals," *Baltimore Sun* (morning edition), February 14, 1908.
- 36 H.J. Hughes testimony in *Hearings Before a Subcommittee*, op. cit. p. 147.
- 37 "Law to Curb Boy Genius," *Baltimore Sun* (morning edition), February 14, 1908.
- 38 von Wiegand, "Stop it Kid!" op. cit.
- 39 Gleason Archer, *History of Radio to 1926* (New York, The American Historical Society, 1938), p. 64.
- 40 Some in the family, like Francis, used the surname "McCarty" while others used "McCarthy", possibly to confuse later generations of historians.
- 41 "With Wireless Twists Tail of Powers that Be," *San Francisco Call*, March 19, 1910.
- 42 Lee DeForest testimony in *Hearings Before a Subcommittee*, op. cit., p. 10.
- 43 Fessenden's "interference preventer" at that point basically used two paralleled LC circuits, one tuned to the desired signal, the other to the interfering signal, shunting some of the latter to ground. See R.A. Fessenden, "Interference in Wireless Telegraphy and the International Telegraph Conference," *The Electrical Review*, Vol. 50 No. 1494, July 13, 1906, p. 77.
- 44 Helen M. Fessenden, *Fessenden Builder of Tomorrows* (New York, Coward-McCann, 1940), pp. 121-2.
- 45 Lee DeForest brief in *Hearings Before a Subcommittee...* op cit, pp. 75-6. Note that his signature on this written statement was copied erroneously by the printer as "Leeds Foust!"
- 46 Walter Massie in *Hearings Before a Subcommittee...* op cit., pp. 53-54.
- 47 Howeth, *History of Communications-Electronics...* op. cit., p. 67.
- 48 Before the convention was passed, Marconi would only accept messages from ships with non-Marconi wireless equipment if they were distress calls. It continued to do so for U.S. ships until the U.S. ratified the 1906 Convention.
- 49 The statement about paying for the stolen car's gas is actually paraphrased from Fessenden, who believed that DeForest's company was infringing on his patents (for example, for the liquid barretter). See R.A. Fessenden, "Interference in Wireless Telegraphy and the International Telegraph Conference," *The Electrical Review*, Vol. 50 No. 1495, July 20, 1906, p. 113.
- 50 Hugo Gernsback, "Wireless and the Amateur: A Retrospect," *Modern Electrics*, Vol. 5, No. 11, February 1913.
- 51 Although it's unclear, the "Wireless Association of Pennsylvania" doesn't seem to be affiliated with Gernsback's "Wireless Association of America."
- 52 This was before the advent of regenerative receivers, which actually could cause interference.
- 53 Rydzewski, "The Wireless Boys of Alameda. Part 1" op cit.
- 54 "Wireless Chaos in America," *Daily Telegraph (London)*, April 12, 1912.
- 55 "An Act to Regulate Radio Communication," August 13, 1912. Available at: <http://earlyradiohistory.us/1912act.htm>.
- 56 Notably, a license wasn't required if the signal couldn't cross state lines (QRP).
- 57 Clinton S. DeSoto, *200 Meters & Down* (West Hartford, CT, American Radio Relay League, 1936), Chapter 5.
- 58 "Man Beats Wife to Court; Both File Suits," *Oakland Tribune*, June 6, 1941.
- 59 "Wolff, Albert C.," obituary, *Oakland Tribune*, September 16, 1963.
- 60 Alexander Seidl, "Excerpts from Engineering Paper," <https://www.sowp.org/wp-content/uploads/2022/03/Bolinas-High-Powerv2.pdf>.
- 61 "Electrocuted at Bolinas," *Marin Journal*, August 20, 1914; "Alamedan is Hurt When Auto Goes Over Bank," *Evening Times-Standard and Alameda Daily Argus*, August 21, 1914.
- 62 Haraden Pratt, "Sixty years of Wireless and Radio Reminiscences," p. 16. Available at <https://www.sowp.org/wp-content/uploads/2022/03/LR-1103062201-Pratt-Reminiscences.pdf>.
- 63 "Alamedan is Hurt When Auto Goes Over Bank," *Evening Times Standard*, *ibid*.
- 64 "Obituary: Henry Heim," *Proceedings of the Institute of Radio Engineers*, October 1914.



John Madden, Radio Star

By Stan Bunger, provided by Steve Kushman

The widespread news coverage of the December 28 death of football legend John Madden has generally focused on his coaching, TV broadcasting and influence on the video game industry.

Much of the Madden story is by now familiar. Successful coach retires young, falls into TV commercials, winds up re-inventing the role of TV sports analyst, lends his name and expertise to America's all-time best-selling sports video game.

That's the John Madden known to the world. But for more than thirty years, Bay Area radio listeners treasured their own version: a familiar voice during morning-drive broadcasts.

That story began in the immediate aftermath of Madden's decision to retire from coaching after the 1978 NFL season. His bigger-than-life sideline persona offered immediate opportunities as an advertising pitchman. But on a smaller scale, Madden was testing the world of radio. A deal for a regular feature syndicated by RKO General led Madden to the San Francisco studios of King Broadcasting's KSFO.

There, a young production director named Fred Greene would record Madden's segments and be pulled into the coach's orbit. Greene would later recall how Madden would listen to his entrepreneurial ideas as they did what Madden loved to do: hang out. Madden even recorded custom answering-machine greetings for Greene's family phone. And somewhere along the way, everyone realized they had an unconventional star in the making.

In 1982, Madden began to appear daily with KSFO morning man "Emperor Gene" Nelson (they'd had occasional on-air chats in earlier years). On a parallel path, Madden was being "discovered" as a pro football analyst. With his larger-than-life personality, his "Maddenisms", and his use of new technology like the Telestrator, Madden was becoming a major cultural figure. His pairing with Pat Summerall on the top CBS Sports NFL crew ensured even more visibility.

As Madden's fame and fortune grew, he could easily have backed out of the daily radio commitment. After all, it required him to be available on schedule, no matter where he was. For a guy who famously traveled only by bus, the logistical challenges were significant, especially in the years before widespread cellular telephone coverage. Yet Madden showed up every day, easing his way into the daily routine of Bay Area morning radio.

Upon Nelson's 1994 retirement, he shifted to KNBR. His pairing with former sportscaster and avid golfer Frank Dill was more radio magic. Longtime listeners still recall conversations between the droll Dill and the loquacious Madden.

After Dill's retirement, word that Madden might be unhappy at KNBR reached longtime KCBS news and program director Ed Cavagnaro. Cavagnaro recalls writing a letter to see if Madden might be interested in shifting to the all-news station, locked in a seemingly endless ratings battle with news/talk powerhouse KGO. Cavagnaro's gambit paid off. Installed at 8:15 am weekdays with KCBS morning anchors Al Hart and Susan Leigh Taylor and sports anchor Steve Bitker, "The Madden Segment" was the exception to the rule at the rigidly-formatted station.

Madden's connection with Hart and the team was instant. Perhaps it had something to do with their shared Minnesota heritage (Madden was born in Austin, MN before the family moved to Daly City, while Hart was a Twin Cities native and University of Minnesota alumnus).

In any case, Madden's 8:15 calls became the stuff of legend. Ostensibly sports-related, they often veered far afield, depending on whatever captured Madden's imagination on a given day. Listeners would talk of lingering in the parking lot to hear the end of the segment. Pure magic for a radio programmer, of course: the "lift" from Madden soon allowed KCBS to best KGO in the 8am hour and rise to the top of the morning drive ratings. In fact, former KCBS SVP/Market Manager



Stan and John Madden, two voices heard many times together on KCBS Radio throughout the years. Photo credit Ed Jay

Doug Harvill now recalls the 8:15 - 8:30 am quarter-hour as the single most-listened-to quarter-hour on the station for many years.

Hart's 2000 retirement led to another shift for Madden. That's when I joined the story. I will never forget my first day back at KCBS in the summer of 2000 (I'd spent ten years at the station before heading off to other ventures between 1992 and 2000). On that first morning with Coach, I thought I knew the drill: prepare for the interview, have a couple of questions ready, listen to the answers, adjust on the fly. After all, I'd done thousands of live interviews over a quarter-century career.

A few minutes before 8:15, a producer's voice crackled in my headphones. "Madden's ready on line 74," came the message over the intercom. I hit the talkback button and said, "Got it," as I punched the appropriate button on the audio console to bring John Madden's voice into our broadcast mix. And then I hit the talkback button again and asked, "What's the topic?" There was a long silence and through several layers of studio windows, I could see into our newsroom, where a couple of staff members sported baffled expressions. Finally, the producer leaned into his intercom microphone and said, "Um, whatever you like. It's Madden."

Now that the programming statute of limitations has required and all concerned have moved on, I can admit that we seldom kept the segment to the five minutes allotted to it on the program log. At one point VP/Programming Mike Preston acknowledged the obvious and suggested we insert an additional traffic report before bringing Madden on; otherwise, commuters might wait 15 minutes between updates.

I used to worry that it was all too good to be true, that Madden would wake up one day and decide he didn't need the bother of a daily call from KCBS. He'd often joked that he stayed on the air so his mom would know what he was up to, but even after Mary Madden's death (well into her 90's), Coach kept showing up.

As I look back on Madden's magic, I can only say that he was simply a guy who loved to hang out with people. He loved to hear a good story and really knew how to tell one. And he had a keen eye for puffery and a willingness to deflate it.

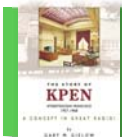
When Madden was being inducted into the Bay Area Radio Hall of Fame in 2015, I sat down with him for an interview. We talked about his unlikely multiple careers. He considered himself "lucky" but quickly said a big part of his luck was having great partners. And he shifted into nostalgia mode when he started talking about his deep love for radio. "I think everyone remembers their first radio play-by-play broadcaster," Madden told me. "Mine was Jack Macdonald."

Then the aging coach, already retired from TV work and nearing the end of his 21-year stretch on KCBS, broke into an impression of the home run call used by Macdonald as he called San Francisco Seals games in the 1940's. "It's going ... going ... it's gone! Right through Aunt Maggie's window!" shouted Madden in a gravelly voice I can only assume approximated what he heard in his youth when Seals games were carried on KYA.

Radio was in John Madden's blood. It was here in the Bay Area that he fell in love with it, and here that he made radio magic for 35 years. Count us all lucky.

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CHRS Publications



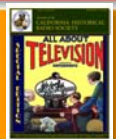
The Story of KPEN: A Concept in Great Radio! Gary Gielow has written a book chronicling the tales of two young men from Stanford, he and James Gabbert, who brought Stereo and new ideas to the FM radio band in the late 1950s and 1960s. This book is the definitive history of KPEN 101.3 FM, the 2015 BARHOF Legendary Station. 100% of the proceeds benefit CHRS. Available in the Museum Store or on the website.

The Radio Boys And Girls—Radio, Telegraph, Telephone and Wireless Adventures for Juvenile Readers 1890-1945 covers more than 50 volumes of wireless and radio themed fiction, offering a unique perspective on the world presented to young readers of the day. The values, attitudes, culture and technology of a century ago are discussed. Available at Amazon.com



Behind the Front Panel: The Design and Development of 1920's Radio by David Rutland has been remastered by Richard Watts for CHRS. With emphasis on radio technology, Rutland describes the development of 1920s tubes and radio circuitry designs by De Forest, Marconi, and other inventors and manufacturers. A classic! Buy at Amazon.com

CHRS Journal Special Edition — Television a compilation of original articles on television, including articles by Malcolm Baird on his famous father, British television pioneer-inventor, John Logie Baird, Don Godfrey's historical bios on CF Jenkins and Philo Farnsworth, plus restoration and technical articles from CHRS members. Available at Amazon.com



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2022 Inductees

The latest inductees into the Bay Area Radio Hall of Fame (BARHOF) were announced July 23 by Ben Fong-Torres and Terry McGovern. They were then inducted into the Hall of Fame at a luncheon on September 10th hosted by the Broadcast Legends and CHRS.



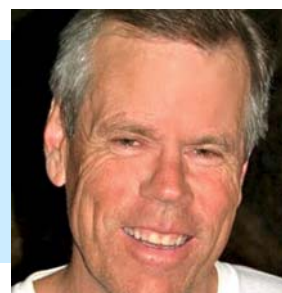
PROGRAM HOST: Annalisa who is known in the Bay Area most prominently on KFOG where she did mid-days for a decade beginning in 1995 when she arrived from New England where she was gigging at KRQR. When morning anchor Dave Morey retired Annalisa took over the popular feature "Ten at 10." After losing her job to budget cuts, she returned home to Boston. She was at WXRV from 2017 until just this June when she moved to Chicago's legendary WXRT.

TALK SHOW HOST: Art Finley For a generation of kids watching afternoon TV on KRON, he was "Mayor Art" beginning in the early 1960s. Sporting a top hat, he entertained with puppetry and cartoons and also did the first newscast for children, "Mayor Art's Almanac." Off the set, he was one of the city's favorite characters, his quotes and stories becoming regulars in Herb Caen's column in the Chronicle, where he drew a cartoon from 1965 to 1977. Finley—real name Finger—went to radio, on KGO and KCBS, where he was as at ease talking with adults as he had been with kids.



NEWS: Dave Padilla, a Bay Area native who worked in the news format for 38 years beginning with KSOL for 12 years, starting as a news intern and ascending to news director. He followed that with 26 years at KCBS as a reporter and weekend morning anchor. He retired from KCBS in 2016.

SPORTS: Bruce MacGowan is one of the all-time bench players in Bay Area sportscasting. Aside from hosting "Sportsphone 680" on KNBR shortly after it switched to an all-sports format in the late '80s, he's been Mr. Weekends and Fill-Ins; the sure thing the PD could tap for pre- and post-game shows for the Oakland Raiders, among others, and for updates during the morning and afternoon drive programs. He also did sideline reporting on Raiders games. He moved on to KGO, doing updates and subbing for sports director Rich Walcott.



SPECIALTY: Kenny Wardell Sr. was adept at working both sides of the radio fence: He was a promo man for RCA Records and was enough of a radio nut dating back to his times at KZAP in Sacramento that he managed to do fill-ins on KSAN. He went on to do stellar promotional work for KMEL, then KFOG. He then got into television, at KTVU, and sports, working with the 49ers and with the NFL Pro Bowl before returning to radio, at KCBS. He operates BAM Media and his own PR agency, SFPR.

LEGEND: Johnny Holliday In the rock and roll '50s, Johnny Holiday was a DJ on WINS in New York; in the Sixties, he joined KYA. Besides high ratings, he scored points with a station basketball team he created, the Radio Oneders, playing games to raise money for schools. He was a co-host of the last Beatles concert, at Candlestick Park in 1966. The Gavin Report named him America's number one disc jockey. He moved to Washington, D.C. and launched a sportscasting career. He's still doing it!



LEGEND: Ira C. Smith known as "the voice of the Valley," covered news and sports for 47 years on Napa radio at KVON-AM and KVYN-FM. He has announced over 600 football and 1,300 basketball games for Napa, Justin-Siena, and Vintage High Schools. Late last month, he kicked off another football season, covering games at Vintage and Napa High. In addition to recognition by the Bay Area Radio Hall of Fame, in March, he was inducted into the Napa High School Athletic hall, is being enshrined into the Vintage High school Athletics Hall of Fame.

MANAGEMENT: Ed Krampf is a manager's manager. In more than 25 years in Bay Area radio, he oversaw well over a dozen radio stations under the umbrellas of some of our favorite broadcasting groups: Clear Channel, Entercom and CBS Radio. He had glory days in the mid- to late '80s as GM of "Live 105" (KITS), introducing the alt-rock format. From 2000 on at SVP at Clear Channel, his stations included KABL, KMEL, "Wild 94.9," "98.1 KISS," "Star 101.3," KKSF, KNEW, and three in the South Bay (KSJO, KCNL ("Channel 104.9") and KUFX ("KFOX").



ENGINEERING: George Zema was the man behind the glass for Dr. Don Rose and Bobby Ocean on KFRC. He kept the Dr. Don moving and sharp with his crazy jingles and comedy inserts. He then made Bobby Ocean's show smooth and flowing. He was the man behind the wheel on the control room board.

LEGENDARY STATION: KMEL 106, SAN FRANCISCO

KMEL 106 is a heritage Bay Area FM radio station that had its beginning in 1946 in San Francisco and has had multiple owners as well as multiple call letter and format switches throughout its legendary history. On July 2, 1977, Century Broadcasting from St. Louis MO, (brothers Howard and Shelly Grafman) came into the city by the Bay and threw the switch on their new station, KFRC 106.1 FM San Francisco. The Grafmans changed the call letters to be KMEL 106- delivering an album-oriented rock format. The station used the KMEL call letters to name itself "Camel 106". Their master plan was very successful in ratings and radio business for close to ten years. From right out of gate, KMEL 106 was one of the top-rated Northern California radio stations delivering big numbers of 18-34 and 25-54 adults, for both men and women. In early 1980's they had a gold mine of great music to play and were able to attract an incredible lineup of talented radio personalities, DJ's, and news people to entertain and inform the audience. They hit a GRAND SLAM!



Vintage Television Enthusiasts Meet - 2022

By Richard Watts

After a two year hiatus, the vintage television enthusiast group met at the CHRS museum on May 14th. The agenda of presentations lasted the entire day from 10am until 4pm. Presenters also brought exhibits of their latest projects. Tom Albrecht was the host this year. The presentations were as follows:



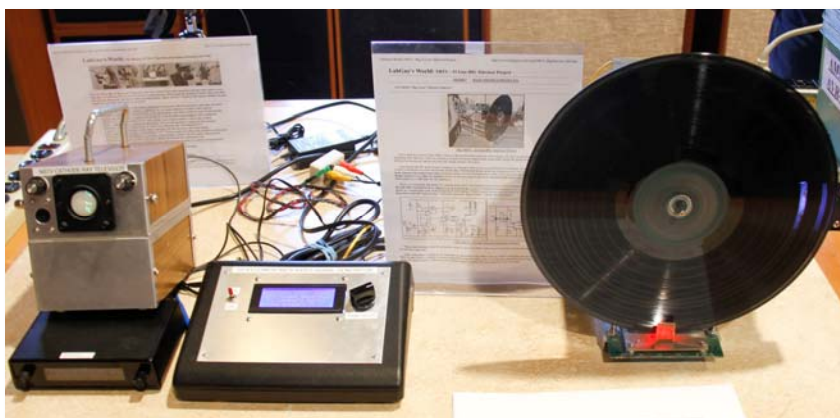
TV Meet Host Tom Albrecht. He exhibited his Philco Safari, the first transistorized TV. The exhibit included a working set and a chassis, CRT, and battery from another set.



Steve Garaventa discussed his experiences on TV shows, at events, and with celebrities when he worked as an engineer at KPIX channel 5.



Richard Diehl discussed two of his latest projects: A narrow band television (NBTv) mechanical televisor (left) and cathode ray version of the NBTv televisor. He also discussed generators and convertors for narrow band television signals.



Gilles Vignaud discussed his design and construction of the video rack and head end for the CHRS museum Television exhibits. He also discussed modifications to a modulator that he helped design (above right). The modifications made were to produce the old television Channel 1.



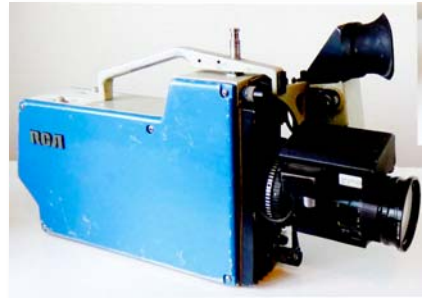
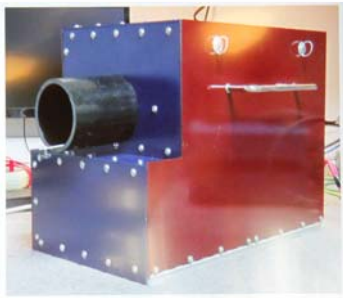
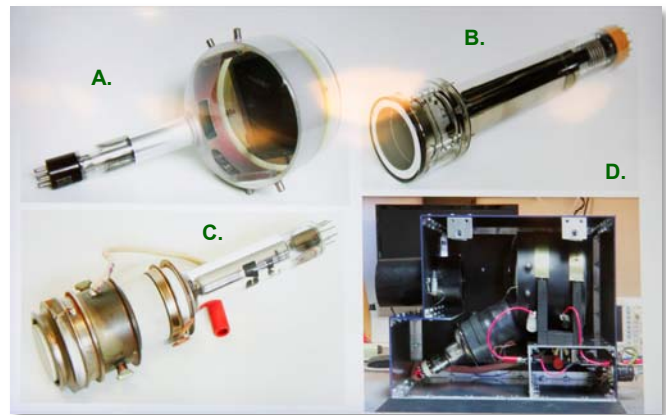
Ron Code discussed an overview of the history of television invention and who should have credit.



Nat Pendleton presented his pre WWII RCA TT5 television which is, by design, vision only and requires the accompanying RCA radio for the audio portion. The set is working as can be seen to the right. Nat then discussed his research to determine the provenance of the set and the original owner. He also presented an overview of the few television broadcasters in New York and the northeast, Chicago, and Los Angeles that were on the air before WWII.



John Staples gave several talks. The first was a technical overview of image intensified video camera tubes. He also discussed the evolution of camera tubes from: A. the Iconoscope, B. the image Orthicon, and C. the Vidicon. Tubes are shown right. The image lower right (D.) is the interior view of his recent Iconoscope camera project.



In other presentations, John presented the details of his Iconoscope camera project (above left), his restoration of a color TK-76 camera (above center), and his three WWII bomber cameras (right). All are working.



John's exhibit above demonstrates the TK-76 in operation (camera left, image displayed right). Also demonstrated is a micro camera (center).





Jim Cirner
CHRS Founders Award



Keith Scott
Volunteer of the Year

More Radio Day Live! 2022



Bay Area Radio Hall of Fame 2022 Inductees
announced by Ben Fong-Torres & Terry McGovern



Russ Button's
Horns a Plenty



Surplus Clearance



Checking Out the Auction Items